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Volume VIII of "The Mineral Industry," we are pleased to announce, is published this week, and copies are now ready for delivery. The tables and the summary which we published last week indicate in some measure the completeness of the statistical portion of this volume; but they do not show the extent or variety of the various records of technical progress which are also included in its pages. The reader must see these in order fully to appreciate the value of this faithful record of the great and useful Mineral Industry.

A Pennsylvania contemporary—which ought to be better informed—refers to "Porman" Lake Superior iron ore. Porman is a well-known iron ore, but it comes from Spain and not from the Lake Superior Region.

The Iron and Steel Institute of Great Britain has before this shown itself free from national prejudices and ready, not only to learn from foreigners, but to recognize the value of their services. It has recently given new evidence of this disposition by awarding the Bessemer medal, the highest honor of the Institute, for the present year to M. Henri de Wendel, who is president of the Comite des Forges de France. The special services which are thus gracefully recognized are M. de Wendel's careful and extensive researches into the best methods of utilizing iron ores high in phosphorus.

Of the metals of minor importance, which have all been affected in some degree by the general activity of business, nickel takes the most prominent position. Since the opening of the year the price of this metal has risen steadily, the total advance to date being nearly 40 per cent. At the higher quotations the producers do not seem able to meet the demand, and further advance is probable. The present demand is due almost entirely to the use of nickel steel in construction and especially in armor plate. The great number of naval vessels now under construction and soon to be begun insures a continuance of the demand for some time to come.

There is one exception in the general settling of iron and steel prices which has been apparent during the past month. The American Tin-plate Company still retains its prices at the highest point, and apparently intends to keep them there, in spite of the reduction in most of the raw material used. It is, in fact, given out that no lower prices of tin-plates are to be expected. At the same time it is announced that the company will refuse to concede the higher rates of wages for tin-plate workers for which the Amalgamated Association of Iron and Steel Workers has asked. The company apparently relies on its virtual control of the trade to get out of the business all that it possibly can. We need hardly say that this idea of management shows a disregard of public opinion, as well of the real interests of the company.

The warning issued by the British High Commissioner in South Africa, which was noticed in our news columns last week, shows that the authorities there do not yet consider that the war is over, and that any operations on a large scale at the mines will be impossible for some time yet. While the Boers do not seem in condition to put a large force in the field again, there are enough of them under arms to give some trouble, and a large British force may be required. As long as Johannesburg is a camp, non-combatants are not wanted there; and the railroads reaching the district will be fully occupied in carrying stores for the troops, leaving them no opportunity to handle mine supplies or other outside freight. Probably pumping, and such other work as may be necessary to preserve mine property, will be permitted; but anything like a general resumption must be postponed for some time. The latest news shows that military operations may continue for some time.

A recent article in a popular magazine, by Mr. Nicola Tesla, is apparently an attempt to renew the aluminum boom which raged in the newspapers a few years ago, when we were told that aluminum was the "metal of the future," and was to supersede copper, iron and steel in a short time. Mr. Tesla says that "a further material reduction in the price of aluminum cannot but be fatal to copper. . . . Before many years have passed it will be engaged in a fierce struggle with iron." All of this reads very prettily, but is very far from being fact. It is true that aluminum has been tried for electrical work in some places and has been found to answer very well; but the supply will have to be much larger than it is at present to affect the consumption of copper in any appreciable degree. The price of aluminum has been reduced from time to time, and it is now—allowing for the very much lower specific gravity of aluminum—actually cheaper for a given bulk

than copper. The manufacture remains a limited one, however, and increases very slowly, not even responding in any degree to the opportunity offered by the high price and great demand for metal for electric work.

Mr. Tesla has had in the past many brilliant ideas and has been on the verge of important discoveries, but he has, unfortunately, rarely been able to reduce them to practice. His work has been very suggestive, but it has resulted directly in few things of real value. We fear that his ideas on metals are of rather a visionary class. We do not think that stockholders of the Calumet & Hecla or the Carnegie Steel Company need by disturbed by the competition of aluminum just yet, Mr. Tesla to the contrary, notwithstanding.

THE MOUNTAIN COPPER COMPANY.

We have received from a director of the Mountain Copper Company a letter in which he characterizes as "absolutely untrue" the following paragraph, which appeared in the "Engineering and Mining Journal," May 12th, page 551:

"We are informed on good authority that the exploration work at the Mountain Copper Company's mines at Keswick, Cal., has thus far failed to develop any extensions of the ore bodies from which the supplies for the smelter are now being drawn. The reserves of ore are gradually being worked out, and the limit must in time be reached. The ore in sight is sufficient for two or three years' supply, and if no new discoveries are made within that time the life of the mine will be short."

Our correspondent adds: "I know you pride yourself on the usual accuracy of your 'Journal,'" and he refers us to the report of proceedings at the third annual meeting of the company in London on March 29th, 1900, for "an authentic statement of the Mountain Copper Company's ore reserves." This official document refers to the ore reserves as follows:

"From several letters received from shareholders, I judge there is some misconception as to the quantity and quality of our ore reserves, and, I will, therefore, refer to the reports on which the prospectus of the company was based for the information of new shareholders and to remind original holders that the company was formed in the first place to mine and smelt an estimated quantity of about 1,500,000 tons of ore represented to be in sight in the mass opened up. So far our mining operations have revealed nothing to make us think that this estimate was over sanguine, on the contrary, the workings have found the body to extend further in some directions than was then anticipated, while the ore extracted has very fully realized the estimate of richness. The ore from which the copper sold during the company's existence has been made is roundly some 400,000 tons. At the average rate therefore of the past three years' output, we can count upon a steady supply for nearly eight more years from the original mass alone, or at the highest rate of smelting yet reached, of about six years. It will be understood that this ore is in sight and proved in the original mass. It was pointed out that the company's property was large and contained outcrops of ore from which it was hoped additional supplies would be derived, but that exploration and prospecting would be necessary to establish quantities and value. In every report issued, reference has been made to this subject, and in not an over sanguine spirit, for although undoubtedly large masses have been more or less defined, the quality has not been satisfactory. During last year more investigation work was done than in previous periods, but with no more conclusive result, and the board deemed it due to shareholders to state the fact clearly, although far from desiring that shareholders should come to the conclusion that prospects were such as to warrant the belief that other and rich masses would not eventually be found. As stated in the report the board have now what they consider valuable geological data to guide them in their explorations, and they are pushing these on energetically and systematically and with considerable confidence of succeeding in locating valuable deposits. Until they are, however, ascertained and known it is wise to observe caution in regard to what has not yet been proved. It should always be remembered that the ground so far examined is only small compared to the extent of the property which is known to be mineralized. In addition to exploring our own territory, the directors have thought it well to take an option, without payment, over a neighboring property, in which a copper ore mass is already somewhat developed, and on this property also during the year exploration work will be carried out. If it reveals an ore mass of real value, this company has the right of acquiring it on moderate terms. That, gentlemven, is a statement of matters as they exist to the knowledge of your directors."

Referring to the prospectus of the company, we find that, according to the experts Mr. Hill, Mr. James D. Hague and Mr. C. W. Fielding, the amount of ore proven in the property when the company was organized was 1,338,183 tons, and Mr. Hague stated that "the ore body has been developed with unusual thoroughness, and its actual dimensions are known beyond doubt."

Of this amount of ore, Mr. Hague in his report said: "I think it reasonably certain that the larger portion, probably three-fourths (1,003,637 tons) of the ore developed contains on an average more than 7½ per cent. of copper."

A reference to the first, second and third annual reports of the company state that the following amounts of ore have been taken from these reserves:

First year	165,060 tons of	8.56% ore
Second year	221,895 tons of	8.42% ore
Third year	203,965 tons of	7.60% ore
Total tons	599,910 Av.	nearly 8.18%

Deducting this from the 1,003,637 tons estimated by Mr. Hague, leaves 412,717 tons of ore estimated to carry over 7½ per cent. This would be scarcely a two years' supply. The remaining one-fourth of ore contained in the known ore body Mr. Hague estimated would carry "from 2 to 4 per cent. copper," say average 3 per cent., but the cost sheets of the company do not give reason to count this as workable under present conditions. The statement of the Chairman, Mr. Keswick, of the meeting of March, 1900, above quoted, says of the present reserves that "this ore is in sight and proved in the original mass," which Mr. Hague measured. It is true Mr. Keswick says that this original mass will still yield six to eight years' supply, but the reports cited above show remaining only 412,717 tons of 7½ per cent. and over, so the chairman or the report appears to have been in error. The chairman admits that the explorations outside of the original ore body have shown only ore whose "quality has not been satisfactory."

The chairman hopes, as do we, that further explorations may find workable ore upon the company's property, but the fact that "the company has thought it well to take an option over a neighboring property in which a copper ore mass is already somewhat developed," indicates a wise doubt of the value of the original property. These extracts from the company's official publications fully justify, we believe, the terms we used in our issue of May 12th, and consequently refute the assertion of our correspondent that our remarks were "absolutely untrue."

We certainly hope the Mountain Copper Company will yet find workable deposits on its property, and we think it a wise and pressing precaution to acquire further supplies of proven ore bodies, for it is clear that unless it does the shareholders will meet with early disappointments.

DESTRUCTION BY DYNAMITE.

It was reported from South Africa that the Boers recently attempted to destroy a railway tunnel by starting from the opposite ends two locomotives, heavily loaded with dynamite; that these locomotives collided at full speed midway in the tunnel, exploding the dynamite and, of course, completely wrecking the engines; but (according to a later dispatch) that the resultant injury to the tunnel itself was relatively small, and could be repaired easily and rapidly. According to another report, the official mining engineer of the Pretoria Government, in charge of the Johannesburg gold mines, said that all the mines of the Witwatersrand could be destroyed in two days by the use of dynamite, if such a step should become necessary. The surrender of Johannesburg to the British, however, with the mines intact, disposed of all these reports of contemplated vandalism.

In view of the fact that a proposition to destroy the mines was made and actually discussed, I take occasion, not to discuss the ethical aspects of this use of dynamite, as related to the laws of civilized warfare, but rather to point out that "destruction by dynamite" is not so easy as its projectors are accustomed to consider it. This statement, illustrated already by the experience of Anarchists, Fenians, strikers and inexperienced miners, seems to have received its latest confirmation in the railroad tunnel mentioned above. The fact is, that when the impact of a dynamite explosion is communicated to a large body of air (as was the case in the great Johannesburg explosion five years ago) it may, through that medium, work wide-spread wreck; but when it is immediately received by solid masonry or rock, its energy is largely expended in the molecular work of local pulverization, being generated too instantaneously, and too simultaneously throughout the mass of the charge, to permit its seeking "lines of least resistance," or following such lines, once found, with the persistence due to a more gradual expansion, such as the slower, progressive explosion of black powder produces.

Thus, in one instance, when put under an obnoxious monument, dynamite dug a big hole in the ground, and pulverized the bottom stones of the monument, but did no further damage. In another case, exploded against the wall of a public edifice, it made a small opening in the immediately adjacent masonry, broke some neighboring windows through the medium of the air—and that was all. In the recent railroad tunnel experiment of the Boers, the collision and the dynamite together doubtless made scrap-iron of the two locomotives, and track ballast of a considerable amount of the rock in the immediate vicinity; but unless the locality of the explosion had been skilfully selected, with a view to collateral results, it is highly improbable that anything more than the clearing away of the rubbish (and, perhaps, some fresh support for walls and roof) would be required to make the tunnel commercially useful again.

The statement of the Transvaal engineer as to the practicability of the "destruction" of a large number of mines in two days, may be taken with much allowance. Unless very elaborate and extensive preparations had been already made, and made with much skill, his threat indicated either cheek or ignorance only. Even if such preparations had been made, the rapid and general destruction which he describes as practicable would be so only if innumerable separate and widely

scattered bore-holes, already charged with dynamite, were waiting only for the electric spark to fire them simultaneously. But no sane engineer would dare to create and maintain such a situation as that for more than a day.

The probability, amounting almost to certainty, is, that such attempted "destruction" would amount to nothing more tnan the partial or total wreckage of machinery and buildings, and the production, here and there, of local and limited caving of ground. This would have caused, no doubt, delay and expense in the resumption of mining operations; but it would not by any means have extinguished the Witwatersrand as a source of gold for the use of the world. R. W. R.

NEW PUBLICATIONS.

"Geological Survey of Missouri. A Report on Greene County." By Edward M. Shepard. Jefferson City, Mo.; State Printers. Pages, 252; illustrated.

This is one of the local reports prepared for the Missouri Geological Survey under the direction of Mr. Charles R. Keyes. It contains a careful and thorough study of the geology of a district in the southwestern portion of the State. It considers in order the topography, hydrography, soils, forestry and the caves and sinks for which the region is noted; the stratigraphy; the geological structure and faults, and finally the economic geology. Under the latter head references are made to lead and zinc ore deposits, lime, building stones, road material, coal, clays, iron and other metals and petroleum. The only mineral deposits worked are those of lead and zinc ores, Greene County being on the borders of the Joplin District.

The report is one of a class which show the services the Geological Survey can render. It shows clearly the present and probable future value of the region and points out the directions in which its economic resources can best be utilized. The knowledge gained from such a survey can be made exceedingly useful to the people of a State and its different sections.

"The Mineral Industry; Its Statistics, Technology and Trade, in the United States and other Countries, to the end of 1899." Edited by R. P. Rothwell. Volume VIII. New York and London; The Scientific Publishing Company. Cloth, large 8vo.; illustrated; pages, 956. Price, $5.

Volume VIII of this well-known and widely-appreciated annual appears this year at a remarkably early date, when due consideration is allowed for the character of the work involved in its preparation. The collection and compilation of the great mass of statistical information pertaining to the production, imports, exports and consumption of more than 100 substances produced in the principal countries of the world, a large part of which was not available until early in 1900, together with the arrangement of the numerous monographs and technical reviews of the different industries, presented a herculean task which was surmounted only by ceaseless energy and painstaking care. It is a matter of great satisfaction to professional engineers, chemists and all interested in the trades based on the mineral industries, to be able to use this valuable material relating to the year 1899 so soon in 1900, and the editors are to be congratulated for their success in issuing the volume at this time.

The scope and purpose of "The Mineral Industry" are doubtless well known to the engineering profession, as it is acknowledged both in this country and abroad as the foremost authority in its special field. The first volume of this work, issued in 1893, contained the statistics for 1892 and preceding years, in many cases extending back to the beginning of the industry under discussion, and it is the intention that these statistical volumes shall in time cover the entire mineral industry of the world, giving its statistics, technology and trade; each succeeding volume supplementing but not repeating the data given in previous issues, and carrying forward the current history of each industry almost to the date of publication. As the work progressed from year to year more detailed statistics were obtained and new subjects were taken up and discussed. The field covered is so vast that it was manifestly impossible to treat each subject in complete detail without enlarging the work beyond reasonable size. As the volume stands, it contains nearly 900 pages of closely printed matter, condensed and arranged in concise form with the aid of all possible typographical devices to economize space. Apart from the statistics of the production, consumption, values, markets, trade conditions, etc., of each substance, a comprehensive review is made covering the progress of the industry during the year and including in many instances new methods of mining, chemical or metallurgical treatment, chemical analysis, testing raw materials and products, and similar facts of technical importance. In this way the annual progress in each field is portrayed in compact form and the reader is enabled to keep well in touch with the modern conditions of the various industries. From year to year specialists have been secured to write monographs, so exhaustive in character that where no important change has occurred in succeeding years, a brief review of the industry suffices for subsequent volumes; in this way repetition of data is avoided, although in some cases it is necessary to refer to previous volumes for a thorough study of the subject. These monographs stand by themselves as distinct works of reference, being in many instances profusely illustrated by working drawings, and often containing detailed statements of cost invaluable to those engaged in the manufacture or trade of the particular material under consideration. Improvements have been made from time to time, and previous statistics have been corrected in a few instances where errors have crept in or where further and more detailed information has indicated a desirable change in presenting the material that has been collected, the ambition being to make the work in all respects par excellence. The latest volume has fully maintained, if it has not exceeded, the high standard of excellence that has gradually been developed from the experience gained in the yearly publication of this work.

An intresting feature of Volume VIII is the use of diagrammatic charts for illustrating the production of the more important metals and minerals in the principal countries of the world, going back in many cases 25 or 30 years. These illustrations show at a glance the relative positions occupied by the different countries from year to year, and are excellent object lessons of the progress in the various industries as developed in the different countries.

On the whole, the arrangement of subjects under their metallic base or principal element, as adopted in Volume VII., has been followed in the present volume. In the publication this year the editor, Mr. R. P. Rothwell, has been supported by Dr. Joseph Struthers as assistant editor and Mr. Louis Janin, Jr. These gentlemen have written many of the unsigned articles, while Dr. Struthers had general supervision of the details of the work. To him and to his assistants great credit is due for the care displayed in the arrangements and in the proof reading. A few minor typographical errors necessarily appear, but the number is infinitesimal when compared with the large volume of the work.

In the preliminary biographical sketches of contributors, including many portraits, will be recognized men of the highest standing either as professional experts or whose names are familiar as authoritative writers on technical or scientific subjects. The introductory paragraph is devoted to a summarized statement of the statistics pertaining to the production of ores, minerals, metals and secondary products of the United States during 1899 and the year previous. The extent and variety of the work may be appreciated from the fact that there has been collected statistics pertaining to 16 metals, and 86 non-metallic substances with a separate table relating to the metals produced from foreign ores and bullions not included in the general summary.

Taking up the chapters in their order of presentation, the first is devoted to Aluminum and Alum. The substances grouped under this caption are aluminum, alum, bauxite, cryolite, corundum and emery, substances which naturally belong to one class, since both bauxite and cryolite are used as a raw material in the manufacture of aluminum and alum, industries so closely interwoven that they cannot be logically separated, and since corundum, also, is partly used as a source of aluminum. The world's production of these substances is given in detail and, apart from the yearly review devoted to the special industries, the condition of the corundum industry in North Carolina, and in Ontario, Canada, is set forth by special articles. Mr. J. B. C. Kershaw, the eminent London chemist and technical writer, has prepared an able review of the progress in the aluminum industry in 1899, including its production, technology and utilization.

The chapters on Ammonia and Ammonium Sulphate; Antimony; Arsenic; Asbestos; Asphaltum and Barytes contain the usual statistics of production and the reviews of the respective technologies, while the chapter on Bismuth contains, in addition, an excellent paper on the metallurgy of bismuth by Dr. Wilhelm Borchers. This article is amply illustrated by working drawings of the furnaces used for the production of the metal, and gives in detail a special reverberatory furnace with a movable hearth which may be drawn out from the furnace without disturbing the other parts. Its simple construction lightens the labor of cleaning and repairs and diminishes the smelting losses. Under Borax the statistics of the world's production are stated in detail, and the new refining works at Bayonne are discussed in a concise though comprehensive manner. This chapter ends with a description of Bigot's method of making boric acid and new methods of determining this substance. Under Bromine there is apparently but little to record, the chapter being devoted to its production only. The section given to Calcium Carbide is admirably prepared by J. B. C. Kershaw, whose usual care has done much to make it not only complete but pleasantly arranged. The subject is treated in a broad manner, giving the number and location of the world's factories, the furnaces employed, including the working details, yield of carbide, cost and selling price. The section concludes with a discussion of the acetylene gas industry, giving its generation, purification, testing, properties and utilization for lighting purposes.

Cement is discussed in the customary manner, stating the production, exports, imports and consumption of both Portland cement and natural hydraulic cement, and concludes with a review of the hydraulic cement industry in the United States in 1899 by Frederick H. Lewis. Chromium and Chrome Ore appear in sufficient detail, and the chapter includes methods of manufacturing not only the metal itself but its salts as well. Analytical methods of determining chromium in steel, of silicon in chrome alloys, and of impurities in chrome yellow are given in brief style. The electrolytic recovery of chromium from waste solutions is also given. The chapter concludes with an excellent article, well illustrated by working drawings, on the metallurgy of chromium, by Dr. Wilhelm Borchers.

As to Clay, the subject is one in which it is extremely difficult to collect and compile statistics. The output from large producers is obtained with small effort, but the industry being one of the simplest and yet one of the widest range, presents many difficulties in securing returns from every individual producer. Occasionally establishments are temporary in character and the methods of keeping records are often very unsatisfactory. The production, by States, of clay and brick building material in the United States in 1898 and 1899 is given in tables which include common brick, building brick, front brick, fire brick, paving brick, and other clay building material. The summarized tables for the two years include, in addition, the value of sewer and drain pipe, crude clay, stoneware and miscellaneous manufactures. After a general review of the progress in the industries during 1899 comes an exhaustive paper on the coarse pottery production of Great Britain, by Wilton P. Rix, whose long connection with the Doulton Art Potteries at Lambeth, England, has especially qualified him for the discussion of this subject. The paper embraces the treatment of the English and Scotch clays as to their analysis and adaptability for special manufactures. Stoneware, and its methods of manufacture into pipes, bricks, pottery, tiling, terra cotta, etc., are given in detail. To the producers and workers of clay this chapter should be of particular value.

The statistics of the production of Coal and Coke have been compiled with extreme care, the numerous tables giving the production in

the United States by States and a diagrammatic chart showing the production of the principal countries of the world from 1860 to the present year. The reviews of the anthracite and bituminous coal trades in the United States in 1899 are set forth in clear and concise summaries. As coal is the fundamental mineral product, the exhaustive and well illustrated monograph on fuel and its economical utilization, is of practical value to coal consumers, mechanical engineers and to all who are interested in the production of power by steam.

The subject of Copper has always been one of great interest and its importance is ever increasing, particularly in later years, when its use in connection with the transmission of electricity has called for enormous quantities of this metal. The chapter on this subject is a long one, occupying nearly 50 pages, and extends over important branches of the industry. The first part is devoted to a comprehensive review of the statistics of production and consumption, markets, and the progress of the industry at home and abroad. Following this is given a section occupied by the principal developments in the metallurgy, concluding with a brief summary of the progress in the electrolytic refining of copper during 1899 by Titus Ulke, whose wide experience in electrolytic work commends his paper to the attention of all interested in this branch of the subject. Next in order comes a paper by Ottokar Hofmann, who has for a number of years been developing hydrometallurgical processes. He contributes an illustrated paper on his method of making copper sulphate, or "blue vitriol." The proposed use of this method in connection with the electrolytic refining of copper claims the attention of all electrometallurgists as well as those interested in the production of this important metal. Following Mr. Hofmann's article is a paper by Joel G. Clemmer on the extraction of copper from burnt pyrites by the Henderson process. The author describes in detail the construction of the plant at Natrona, Pa., giving a dimensioned plan and elevation of the arrangement and furnaces, together with construction drawings of the tanks employed. It concludes with a summary of treatment costs which is complete in detail and arrangement. This chapter concludes with an excellent article on copper mining in New South Wales, by Louis Janin, Jr., whose recent connection with the copper-gold mines at Cobar, N. S. W., has eminently fitted him for the valuable discussion of this subject.

The sections on Feldspar, Fluorspar, Fullers Earth and Garnet are comparatively brief, being devoted to the usual statistics of production and review of the industry. The section on Gems and Precious Stones is supplemented by an interesting article on the cutting and polishing of precious stones, by Leopold Claremont, a well-known gem expert. This article is well illustrated. The chapter on Glass, which is taken up for the first time this year, is devoted to an exhaustive monograph by Robert Linton, in which are discussed the physical and chemical properties of glass, the raw material used in its manufacture, the various classifications used in commerce, with a detailed section on its manufacture and metallurgy. The article concludes with brief descriptions of the manufacture of special kinds of glass, well illustrated with numerous dimensioned drawings of the various furnaces employed at the present time.

The section on Gold and Silver, occupying nearly 90 pages, will probably be read with more general interest than any other. Following the detailed statistics of the production of gold and silver by States in this country and the summarized production in the principal countries of the world, are the excellent charts of the world's production referred to earlier in this review. The progress of the industry in the various States is then given in careful summary and the status of the industry in other countries is given in clear and succinct style. The special monographs on these subjects consist of a comprehensive review of gold milling during 1899; an admirable paper of 25 pages on the progress in the cyanide process during 1899, by Louis Janin, Jr., who gives in an exhaustive manner the details of the various conditions to be observed for successful practice, concluding with a summary of the many valuable discussions that have appeared from time to time in the technical journals of the year; an illustrated paper on gold dredging in the United States, by A. Grothe, whose recent experience with the Snake River gravels has fitted him for this review of the subject; and an article illustrated by construction drawings, on the Moebius electrolytic process for parting gold and silver, by Malvern W. Iles, who discusses the various details of the subject in full, concluding with a statement of costs.

In Graphite, E. G. Acheson describes the production of artificial graphite from anthracite coal, a new and important branch of the industry. The discussion of the Iron and Steel industries presents many facts of great values, the statistics and markets of the various products being given in adequate detail. The review has been supplemented by an admirable monograph on the progress of iron and steel metallurgy in 1899, by Henry M. Howe, who has presented the subject in a very satisfactory manner. His excellent critique of the recent advance in the metallurgy of open-hearth steel, the Talbot continuous process, is the most thorough and exhaustive paper yet published on this subject, and for this reason alone, if for no other, "The Mineral Industry," Volume VIII, should be of great importance to all interested in iron and steel metallurgy.

Statistics of Lead production in the United States and the principal countries of the world, supplemented by a diagrammatic chart and discussion of the world's markets in 1899, are given in the next section, which concludes with H. O. Hofman's paper on improvements in lead smelting and desilverizing. Mr. Hofman's care and copious references to current technical literature render his work of great value to all lead metallurgists.

The manufacture of Lithium Salts, an industry that is of recent inception in the United States, appears for the first time in "The Mineral Industry." The description is given in a practical and scientific manner by Hans A. Frasch, whose close affiliation with many chemical manufacturers places him in a position to handle this subject in a thorough manner. The chapter on Manganese contains an excellent paper on the American consumption and supply, by Alfred A. Wheeler; the increasing importance of this metal and its alloys in the manufacture of steel lends special interest to his paper. Under Nickel and Cobalt is an excellent summary by Henry Souther of the facts contained in the papers on alloys of iron and nickel by R. A. Hadfield and by David H. Brown. The growing importance of nickel-steel for shaft and similar forgings calls special attention to this section. An excellent paper on the Billaudot electric plant for the manufacture of phosphorus is given by the eminent German electro-chemist, Wilhelm Borchers, and later on J. B. C. Kershaw has summarized the progress in the electrolytic chlorate industry in 1899 in his usual critical style. Under the caption of Soda and Sodium appear two very interesting articles; the first on the Solvay method of manufacture, and the next on the electrolytic production of chlorine and caustic soda, by Alfred T. Weightman. These articles are illustrated and render the volume of greater value to those interested in chemical industries.

The section on Stone, by Charles L. Whittle, embraces 22 pages and is devoted to the general progress of the industry in the different States. The chapter on Sulphur and Pyrites is a long one, and in addition to the usual statistics and reviews are included papers on the progress in the sulphuric acid industry by J. B. C. Kershaw; liquid anhydrous sulphurous acid, by Dr. Franz Meyer; the manufacture of sulphuric acid stronger than chamber acid, by F. J. Falding, supplementing the admirable paper by this author on the manufacture of chamber sulphuric acid which appeared in Volume VII, and the sulphur industry of Italy, by Giovanni Aichino, who discusses the mining and preparation in a thoroughly practical manner. The article is well illustrated by cuts showing the sections of various sulphur deposits and the details of the different furnaces employed for its extraction. Under Tin is included a short paper on its metallurgy by Henry Louis, and in the following section on Tungsten appears a condensed article by W. Borchers on its metallurgy. To Zinc is devoted over 60 pages that include not only the statistics of production and general review of the markets but special monographs on different branches of the subject, among which may be mentioned the excellent review by Walter Renton Ingalls of the progress in the metallurgy of zinc in the United States in 1899, which is given in the author's clear and well appreciated style. This is followed by an illustrated article by Messrs. Haworth, Titcomb and Nicholson on the Galena-Joplin lead and zinc district.

The volume concludes with a number of monographs on subjects pertaining to the development of the mineral industry. The first is the Progress in Electrochemistry during 1899 by Wilhelm Borchers, followed by an illustrated article on Liquid Air, by T. O'Conor Sloane. R. H. Richards gives his usual review of the literature on Ore Dressing in 1899, followed by the Progress in Metallography, by Albert Sauveur, which summarizes the advance in this department of metallurgy during 1899. The article on Mine Timbering, by Wilbur E. Sanders, is among the best of these monographs, and the extreme care taken in the preparation of the drawings lends additional value to this highly important paper. The subject of ore dressing is one of ever increasing importance, and the excellent discussion which has been condensed from the advance sheets of Prof. Richards' forthcoming book on this subject is of great interest to all engineers and metallurgists. This monograph covers nearly 40 pages and is a valuable feature of the work.

The limited space available for this review precludes all but the mention of the following sections, in which, however, in addition to the usual statistics and reviews, appear many notes of practical value. The chapters here included are Magnesium and Magnesite; Mica; Molybdenum; Ocher and Oxide of Iron Pigments; Petroleum; Phosphate Rock; Platinum and Iridium; Quicksilver; the Rare Elements; Salt; Silica and Slate. There are also full reports of the mining stock exchanges in 1899, compilations of the mineral statistics of foreign countries and of the United States, imports and exports of minerals, metals, etc. Volume VIII of "The Mineral Industry," I am quite satisfied from the study I have been able to give it, is of the high standard which has made its predecessors the acknowledged authority in its particular field.

J. O.

BOOKS RECEIVED.

In sending books for notices will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"Traction Electrique. Par Eric Gerards. Paris, France; Gauthier-Villars. Pages, 136; illustrated. Price (in New York), $1.25.

"Lecons d'Electrotechnique Generale." Par P. Janet. Paris, France; Gauthier-Villars. Pages, 608; with 307 illustrations. Price (in New York), $7.

"Annual Report of the United States Life-Saving Service for the Fiscal Year Ending June 30th, 1899." Washington; Government Printing Office. Pages, 524; illustrated.

"Resena Economica del Estado de Tobasco, Republica Mexicana." Por Alberto Correa. City of Mexico: Printing Office of the Ministry of the Interior. Pages, 168; with map and illustrations.

"Geological Survey of Canada. Summary Report for the Year 1899." George M. Dawson, Director. Ottawa, Canada; Government Printer. Pages, 224; with maps and illustrations.

"New South Wales Statistical Register for 1899. Part II. Local Government. Part III. Shipping." By T. A. Coghlan, Statistician. Sydney, N. S. W.; Government Printer. Pages 60 and 64.

"Industrial Chronology for 1899." Part 7 of the 14th Annual Report of the Bureau of Statistics of Labor of Massachusetts. Horace G. Wadlin, Chief of Bureau. Boston; State Printers. Pages, 72.

"De l'Accaparement." Par Francis Laur. With preface by Edmond Thery. Paris, France; Societe Anonyme des Publications Scientifiques et Industrielles. Pages, 350. Price (in New York), $2.75.

"Les Etats-Unis Mexicains; Leur Ressources Naturelles, leur Progres, leur Situation Actuelle." By R. de Layas Enriquez. City of Mexico: Printing Office of the Ministry of the Interior. Pages, 240; illustrated.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

"E. M." and "M. E."

Sir: From a recent issue of your paper I notice that the old controversy has again cropped up regarding the relative merits of the letters "M. E." and "E. M." to designate the mining engineer. Personally, I much prefer "E. M.," as "M. E." means mechanical engineer as well as mining engineer, and is in fact invariably used by the former; "E. M." is therefore more distinctive, and further, it agrees with the exact wording of the degree that one receives as engineer of mines.

On the whole, your correspondent of some years ago had the best of the discussion in claiming that of all the letters for the mining engineer to place after his name, the most desirable were "C. C. C.," meaning thereby "capable, conscientious and cold-nosed." T. H. L.

Cape Town, May 8, 1900.

Vanadium in Coal Ashes.

I have seen in the "Engineering and Mining Journal" references to the occurrence of vanadium in the ashes of certain coals mined in the Argentine Republic. It would be perhaps interesting to your readers to know that I made analyses in January, 1898, to determine the vanadium contained in these ashes. The analyses were made at the laboratory of the National Mint in Buenos Aires, and the vanadium was determined in the form of vanadic acid. The coal was mined in the province of Mendoza, and the ashes contained about 10 per cent. of an alkaline vanadate. Samples of vanadic acid from this coal are in the Museum of the Mint.

The Mendoza coal is rich in hydrocarbons and could be used for gas making. It has been tested at the gas works in Buenos Aires and found to make better gas than the imported coal now used. Unfortunately the high rates of freight by rail from Mendoza to Buenos Aires prevent it from competing with foreign coal.

Alcide Charles Picard.

Denver, Colo., May 15, 1900.

Copper Consumption in Germany.

Sir: I would like to call attention to the statement which I sent you about a year ago, when certain market reports, issued by concerns well known in the copper trade, stated that copper consumption in Germany was diminishing. Your "Journal" also called attention to these statements. I then wrote also, according to my observations, based upon close connections with copper buyers and consumers, that the consumption of the metal in Germany in 1899 would be quite as large as in 1898, notwithstanding the high prices. The statistics which are now available verify my prediction, since the consumption of copper in Germany was even larger last year than in 1898; reaching a total of 105,000 tons, of which only about 25 per cent. was produced at home.

The consumption in 1900 will again exceed that of 1899, provided no war nor commercial crisis intervenes. The price of the metal is very high and may remain so for some time; but manufacturers are all busy and have large contracts in sight, which must be filled.

H. E. Bandell.

Frankfort, April 30, 1900.

Welding Copper—The Leibe Process.

Sir: Some tests have been made recently in the laboratories of the University of Tennessee with copper welds made by a process known as the "Leibe Process." Without going into the details of the history of the process as brought forth by Mr. Leibe, and developed by J. R. McColl, professor of mechanical engineering, and myself, both of us of the Leibe Company, I send you the following statement, believing it will be of great interest to you and to others interested in the copper and allied industries. The Leibe process is essentially a method of treating the copper, after which it is welded to itself, or to iron or steel, similarly, and as simply, as iron is welded to iron in the ordinary blacksmith's forge. The process, then, is not one of electrical welding, or brazing, as some inquirers have thought, but is simple welding with heat and flux, as iron is welded.

The objects of the investigations above mentioned were to find the conditions for the most satisfactory welds, and the strength of such welds subjected to tensile tests. The first series of experiments were to determine the comparative successes of various fluxes, heats, and similar points in the mechanical processes of welding the treated copper—the testing machine being used to find the approximate strengths of the welded joints. These specimens were not turned down, but were simply filed to approximate uniform cross-sections. The welds were made mostly with No. 0000 copper rods cut from old rail bonds—this copper being the easiest to secure. The treatment of the copper is held a secret by the Leibe Company, the patents not having been taken out yet, although they have been granted. A suitable flux was found, and lap welds of 2 to 4 diameters in length, with the surfaces made convex so as to drive the flux from the center first, gave excellent unions. A clean fire of coke or charcoal and a temperature of the copper considerably below a white heat insured the best success. A temperature above this made the metal brittle in working, while one much below would not give sufficient fluidity to the flux.

Some of the specimens produced in this preliminary series of experiments stood very high tensile tests. One sample, for example, broke in two places not at the weld, approximately under loads of 33,000 and 35,000 lbs. per square inch respectively, before it finally broke at one end of the weld at about 38,000 lbs. per square inch. It might be said here that tests were made to weld copper which had not been treated, and with very unsatisfactory results. Without letting the blacksmith know the difference, pieces were given him which had every appearance of treated copper, and his remarks over his failure to make good welds were somewhat amusing. Formulas given in the books for making copper welds were also tried, with results which could not be counted in any way satisfactory.

The second series of tests—the last which have been completed at the present writing—was to determine more accurately the maximum strengths of welded joints as they would run in a lot made by a blacksmith following as closely as possible the conditions which apparently gave the most satisfactory results as found by the previous experiments. In the tensile tests of this series the maximum strength of the welded joints was the only thing worked for, and no record was made of the elongation, reduction in section, elastic limit, and other things usually taken in tensile tests for the strength of materials. The specimens were turned up to the largest sizes which would give uniform sections 4 or 5 in. long, including the weld, and also allow the ends to be trued to a larger size for the testing machine jaws. The lot as it came from the blacksmith shop consisted of 11 samples of copper welded to copper and 10 samples of copper welded to machine steel. The following tables give the maximum loads which these various pieces sustained:

Mark on specimen.	Area in sq. in.	Maximum load per sq. in.	Remarks.
A.	.092	32,000	....
B.	.11	30,000	Broke squarely across specimen.
C.	.133	32,500	....
D.	.14	29,500	Broke near one end of weld.
F.	.152	24,400	Broke squarely across specimen.
1.	.429	18,000	Broke pretty much through weld.
2.	.484	21,300	Broke at one end of weld through part of weld.
3.	.447	20,000	Broke about as No. 2.
4.	.424	21,500	....
5.	.413	16,800	Broke through weld.
6.	.416	14,200	Broke through weld.

The above table represents the 11 samples of copper welded to copper. Tests have not been made yet for the properties of the copper—especially its strength under tensile loads—as they would be modified by the processes of welding and forging, but as the strength of copper is given by various authorities to be from 20,000 to 30,000 lbs. per square inch for cast copper, to 34,000 or 35,000 lbs. per square inch for forged copper, and even much higher for hard-worked copper—especially wire, hard drawn—it is apparent from the table that several of the welded joints have stood excellent tests which are very probably the full strength of the copper, for these specimens broke practically as solid bars would rupture.

The following table gives the results of the tensile tests with the 10 samples of copper welded to machine steel:

Mark on specimen.	Area in sq. in.	Maximum load per sq. in.	Remarks.
G.	.15	18,300	....
H.	.10	20,000	Broke through weld.
I.	.102	10,000	Broke squarely across. Copper apparently burned.
J.	.099	13,000	Broke through weld.
K.	.0875	8,500	Broke partly through weld. Copper apparently burned.
L.	.102	23,400	Broke at one end of weld.
N.	.096	19,300	Broke through weld.
7.	.328	17,600	Broke at one end of weld.
8.	.335	14,300	Broke partly through weld at one end.
9.	.335	13,700	....

In the first series of experiments, tests were also made with the welding of copper to wrought iron. Welds were made in one or two instances which stood the approximate load of 28,000 lbs. per square inch. Although the copper to steel welds did not give as good results as the copper to copper, it seemed to be due to inefficient mechanical working, the flux not being driven out of the joint in all parts. Where this was accomplished there seemed to be complete union.

The testing machine used in the tensile tests was a 20,000-lb. Olsen, power driven. The load in each case was increased at a moderate rate and continuously until rupture took place. The average time for each test was probably about three or four minutes.

As it has already been suggested, the next series of tests will naturally be to determine the properties of the copper as it has been used in the experiments, for a comparison of the strength of the welded joint to the full strength of the copper, and for the treated copper with the untreated. Some iron to iron welds made by the blacksmith who did the above copper welding, and considered by him to be "as good as could be made," stood only 50 or 60 per cent. of the full strength of the iron.

Chas. E. Wait.
Professor of Chemistry, University of Tennessee.

Knoxville, Tenn., May 12, 1900.

COAL EXPORTS OF GREAT BRITAIN.—The exports of coal, coke, cinders and briquettes from the United Kingdom during April were 3,448,517 tons, as compared with 3,455,109 tons in April, 1899, and 2,601,256 tons in April, 1898. The total fuel exports for the four completed months of the year were 13,723,262 tons, being 576,557 tons more than in the corresponding period of 1899, and 2,613,464 tons more than in the first four months of 1898.

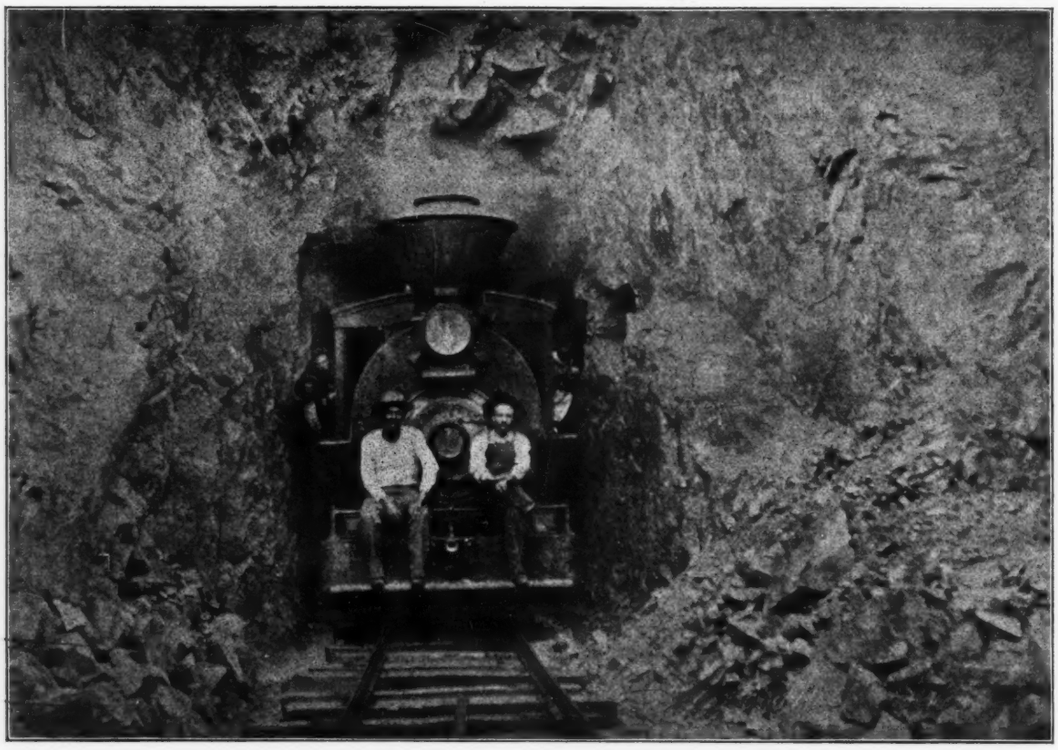
SAULT STE. MARIE CANAL TRAFFIC.—The total number of vessels passing through the Sault Ste. Marie Canal from the opening of navigation up to June 1st was 3,348. The total freight carried was 4,565,879 net tons, against 2,908,068 tons in 1899, and 3,372,347 tons in 1898. The principal mineral freight reported was:

	1899.	1900.
Iron ore, net tons	1,619,394	2,733,525
Anthracite coal, tons	128,789	755,082
Bituminous coal, tons	317,201	724,958
Copper, tons	10,833	19,423
Salt, barrels	75,465	67,217

Of the total freight carried this year 3,573,228 tons (78.3 per cent.) were east-bound, and 992,651 tons (21.7 per cent.) were west-bound.

A PROCESS FOR CALCINING LEAD ORES.

According to C. Von Ernst in the "Oesterreichische Zeitschrift für Berg und Huttenwesen," at Pertusola in Italy, a new process for the calcination of lead ores containing galena has been introduced by Messrs. Huttington & Heberlein, which has proved to be a great advance on the method formerly used. The ore mixed, according to the proportion of sulphur present, with from 6 to 15 per cent. of lime is heated in a reverberatory furnace to about 700° C., and then cooled to about 550°, with the result that from 25 to 30 per cent. of lead sulphate and 2 per cent. of lead oxide are formed, and no metallic lead separates, the loss by volatilization being almost nothing. Under the ordinary condition of roasting galena, only 3 per cent. of sulphate and 4 per cent. of oxide are formed together with some metallic lead and a notable quantity of fume. The amount of sulphate produced is proportional to the oxygen in the lime present, which, however, is not altered by the reaction, and apparently serves only as a carrier for atmospheric oxygen. The operation is continued until 5 per cent. of unchanged lead sulphide remains, when the product is pulverized, transferred to a converter and subjected to an air-blast at a pressure of about 1 in. of mercury. In a few moments a notable rise of temperature is observed from the oxidation of the residual sulphide, and the joint action of lead sulphate and air. The mass becomes pasty and evolves dense fumes of sulphur dioxide, and finally solidifies when the operation is finished. The product is essentially a mixture of lead oxide with calcium sulphate and if the ore is silicious, lead silicate, the sulphur being entirely removed even when other sulphides are present. The final reduction is done in a blast furnace. The process works well, with a saving of nearly one-half of the fuel formerly used, diminished losses of lead and silver, and greatly reduced cost for labor. From eight to nine furnaces in use treat about 38,000 tons of ore annually, the whole of which is reduced in a single blast furnace, instead of the three or four that were formerly required.



LOCOMOTIVE "GENERAL" IN TUNNEL, NACOSARI MINES, MEXICO.

IRON AND STEEL PRODUCTION OF CANADA.

The following figures for the iron and steel output of the Dominion of Canada are given in the annual report of the American Iron and Steel Association. The production of pig iron in Canada was first ascertained from the manufacturers by the Association for the year 1894, when it amounted to 44,791 gross tons. In 1895 the production amounted to 37,829 tons, in 1896 to 60,030 tons, in 1897 to 53,796 tons, and in 1898 to 68,755 tons. In 1899 the production of all kinds of pig iron, including spiegeleisen and ferro-manganese, was 94,077 tons, of which 17,796 tons were charcoal and 76,281 tons were charcoal and coke mixed and coke pig iron. The production of Bessemer pig iron in 1899, included in the figures given above, was 5,120 tons, and the production of basic pig iron was 22,666 tons—all made by one company. The total production of pig iron in 1899 as compared with that of 1898 shows an increase of 25,322 tons. The consumption of limestone by the Canadian furnaces in 1899 amounted to 50,726 tons, against 30,302 tons in 1898.

Canada produced spiegeleisen and ferro-manganese for the first time in the spring of 1899, the Mineral Products Company of Hillsboro, New Brunswick, having blown in its leased furnace at Bridgeville, Nova Scotia, on May 11th of that year. A mixture of charcoal and coke is used for fuel. The furnace did not run continuously on spiegeleisen and ferro-manganese in 1899, about one-fourth of its production during the year being ordinary pig iron.

On December 31st, 1899, the unsold stocks of pig iron in Canada which were in the hands of the manufacturers or their agents amounted to 9,932 tons, as compared with 9,979 tons in 1898; 20,265 tons in 1897; 29,320 tons in 1896, and 17,800 tons in 1895. Of the unsold pig iron on hand on December 31st, 1899, a little less than one-half was charcoal pig iron, the remainder being coke.

On December 31st, 1899, there were 9 completed blast furnaces in the Dominion, and of this number 4 were in blast and 5 were out of blast. On December 31st, 1898, there were also 9 completed furnaces, of which 3 were in blast and 6 were out of blast.

The production of Bessemer and of basic and acid open-hearth steel ingots and castings in 1899 was 22,000 gross tons, against 21,540 tons in 1898. Of the total production of open-hearth steel in 1899 about one-third was made by the acid process. The production of iron rails and open-hearth steel rails in 1899 amounted to 835 gross tons, against 600 tons in 1898; structural shapes, 2,899 tons, against 1,565 tons in 1898; cut nails made by rolling mills and steel works having cut-nail factories connected with their plants, 235,981 kegs of 100 lbs., against 152,688 kegs in 1898; plates and sheets, 2,220 tons, against about 1,000 tons in 1898; all other rolled products, excluding muck and scrap bars, blooms, billets, sheet bars, etc., 94,153 tons, against 80,322 tons in 1898. Changing the cut nail production from kegs to gross tons, the total quantity of all kinds of iron and steel rolled into finished products in the Dominion in 1899, excluding muck and scrap bars, billets, and other intermediate products, amounted to 110,642 tons, against 90,303 tons in 1898, 77,021 tons in 1897, 75,043 tons in 1896, and 66,402 tons in 1895.

The total number of completed rolling mills and steel works in Canada on December 31st, 1899, was 16. Of this number at least 3 were idle during the whole of 1899.

PATENTS IN GERMANY.—During last year 21,080 patents were applied for in Germany, compared with 20,080 in 1898 and 18,347 in 1897. Of these 7,430 were awarded after examination by the Patent Office, the corresponding number during last year having been 5,570. Thus, while the number of applications only increased by 3.7 per cent., the number of successful applications increased by 33.4 per cent. During the year 5,171 patents have expired or become void, and the total number of patents in force is 22,198.

EXPORT OF GAS MACHINES TO GREECE.—United States Vice-Consul Monaghan writes from Chemnitz, Germany, April 25th, 1900: "Greece offers at this time a very good market for the export of gas motors of all kinds. The works of Athens and Piraeus deliver gas to their customers for industrial purposes at very low rates. The Grecian mining industries have also increased in activity of late, causing a great demand for mining machines and apparatus. It will be of advantage to makers and exporters of such machines to investigate conditions in the Grecian market, time of payment, credits, packing freights, tariff, etc. Catalogues printed in French would, if sent, be very advantageous. The German papers are calling the attention of manufacturers to the above line of machines."

THE NACOSARI MINES, MEXICO.

Written for the Engineering and Mining Journal by H. B. Layton.

(Concluded from Page 679.)

For the present, at the mine, a 15 H.P. dynamo operated by a 16 H.P. Fairbanks-Morse gasoline engine will drive a 10 H.P. motor for mine ventilation purposes, including a large rotary and 6 15-in. Sturtevant blowers. Later rotary and static transformers will be installed in the power house, whence power will be transmitted to the mine to drive traction motors, for lighting, and to replace the local plant. The electrical plant was installed and is operated by W. A. Ferguson, an electrician of wide experience in power plants.

The concentrator building is 200 by 90 ft. on foundations that required 60,000 ft. of masonry. Like the power house, the structure is steel frame sheathed with corrugated iron. The mill is as complete as modern practice can make it, and was constructed under the supervision of J. T. Hall, considered to have no superior as a concentrator operator. Although of 400 tons daily capacity, the mill is really two mills of 200 tons capacity each. Either mill may be operated independently of the other. The appliances of each in the order they are utilized include a 10 by 20 in. Blake crusher; 30 H.P. motor; 8 ft. ⅞-in. mesh revolving screen; 8 roughing jigs (4 single and 4 two-compartment); First roughing rolls; Fraser & Chalmers 16 by 36 in. 50 H.P. motor; elevator from rolls to set of double trammels, respectively ⅜ in. by ⅝ in. by

FURNACES AND CONVERTING MILL, NACOSARI MINES, MEXICO.

16 ft., ¼ in. by ½ in. by 16 ft.; set of 4 two, 4 three, and 2 four-compartment jigs; set of 16 in. by 36 in. rolls for recrushing tailings from the 2 four-compartment jigs; straining trough over which tailings pass to high speed Fraser & Chalmers 8 by 56 in. crusher, 50 H.P. motor; 2 No. 6 Rumsey centrifugal pumps, 20 H.P. motor, to pump water from straining trough to tanks to be reused in roughing jigs. From high speed crusher tailings continue through two 16-mesh trammels, thence to 4 four-compartment jigs and 8 vanners. There are 4 vanners for resized tailings, a 30 H.P. motor for jigs, and a 30 H.P. motor for vanners.

Concentrates are carried from jigs in cars that run on tramways in alleys between the jigs. Vanner and fine jig concentrates are collected in same manner and all ore transferred to the briquette machine. Water required is 300,000 gals. daily, pumped from main well near mill by a Worthington 3-plunger vertical driven by a 25 H.P. motor. Total complement of men for day and night shifts is 28; wages same as similar service in United States. Concentrates will carry a minimum of 26 per cent. copper.

The concentrated ore mixed with flux is pressed by briquetting machine into discs that are carried by a belt to the drying room, 100 by 8 ft., where for 24 hours they are subjected to hot air currents, the exhaust from the gas engines, drawn through underground pipes from the power house and forced through the dry room by a rotary fan attached to a 5 H. P. motor. From here the briquettes are run by tram car to the furnace feed floor.

The smelter-converter building is a steel structure 175 by 62 ft. on massive masonry, arranged in three step-like floors. The equipment is two 150-ton furnaces, two 5-ton Bessemer converters, tilting matte settler, hydraulic pumps, accumulators, turntables, hydraulic elevators, air receivers, crushers, pans and dryers for lining clay, etc. It is thus seen that from mine to ingot 98 per cent. fine the ore and metal passes through every operation almost by gravity. All dust and fumes are carried from the furnaces and converters by a 6½ by 8 ft. flue 800 ft. long to a brick chimney on the hill whose top is 250 ft. higher than the mill.

Immediately west of the smelter building is the blower house. The blast furnace blower is run by a 75 H.P. motor, and the high pressure converter blower has two 75 H.P. motors, all belted direct. Another 50 H.P. motor operates the briquette machine and conveyor belt that carries the briquettes into the dryer.

South of the smelter are masonry walls 70 by 30 by 20 ft. enclosing the coke bin on which is a roadway from which coke is dumped. The gas plant is near by, comprising producers, receivers, washing tank, mixers and holders. All is protected by heavy walls, and above are coal storage bins from which coal is fed to the producers by gravity.

The machine and blacksmith shops near the power house are equipped with every required appliance for repair work, including lathes, shapers, drill presses, pipe cutters, with a complete complement of tools.

The water for the entire plant and the town is pumped from a caisson sunk to bedrock 25 ft. in the bottom land near the concentrator. Two large pumps moved by electricity in addition to the concentrator pump are required for the work.

The town stands north of the mill on slightly sloping ground. In the center is the plaza, 500 by 150 ft., in which is being planted flowers and trees. South of the plaza are rows of 50 brick tenements. North of it is the hotel building, 260 ft. long, and the company store, 264 ft. long. Further north are houses for the company physician, Dr. Giles S. Hall, and heads of departments. Back of these is the house for officers of the company and of A. H. Danforth, resident superintendent. A school house is at the north end of the plaza, and a hospital building is being planned. All structures are of brick, roofed with corrugated iron.

Common labor is performed by Mexicans, who receive $1.50 per day, Mexican, for outside work; miners, $2, and machine men $4. The American skilled operators receive the same compensation as rules in Globe, Bisbee and Morenci, large plants also owned by Phelps, Dodge & Company. At the present time about 100 Americans and perhaps 400 Mexicans are employed at both mill and mine. In full operation the number will be more than doubled. It is the intention of the company to do custom smelting, or to buy available ore from adjacent mines. The cost of reducing a ton of ore is not yet determined, but a maximum figure of $6 is mentioned to apply to the period required to build the railroad from Naco to the mill. When the road is completed the cost will be considerably reduced.

The Nacosari & Gulf Railroad, now under construction from Naco, is being built entirely by money furnished by Phelps, Dodge & Company. M. W. Wambough is engineer in charge for the owners; Streeter & Lusk, of Chicago, are the contractors. From Naco the line traverses a comparatively level valley southward below La Pera, a distance of 75 miles. From that point heavy work will be required, since the route is through deep canyons and heavy mountainous country. The road is standard gauge with 40-lb. rails. Ties and rails for 47 miles are now on the ground at Naco. The charter of the road from the Mexican Government requires its completion to Nacosari within a year from February 1st this year, and its early extension from that point to a Gulf port, probably either Guaymas or Mazatlan.

Naco, the northern terminus of the road, is a new town on the international boundary, 9 miles southwest of Bisbee. The Arizona & Southeastern road, another Phelps, Dodge & Company property, extends from Benson on the Southern Pacific to Bisbee, 55 miles, near which point the road branches to Naco.

A TECHNICAL SCHEME FOR THE RAPID DETERMINATION OF SMALL AMOUNTS OF COPPER IN CHILLED SLAGS.

Written for the Engineering and Mining Journal by Charles F. Shelby.

The writer has had occasion for several years past to make daily analyses for copper in the slag from lead blast furnaces; the copper contents of which slags were very low. The results were requested with all possible haste and to be reported in hundredths of a per cent. With such a proposition, for which no adequate method is widely published, I found it necessary to do considerable experimenting which finally resulted in the following method as being considered the best, and which is hereby submitted to the chemical and metallurgical fraternity.

Five grams of the powdered slag is placed in a No. 3 casserole, moistened with 2 or 3 c. c. of water and agitated while adding about 10 c. c. strong hydrochloric acid and then 1 c. c. nitric acid. The casserole is then heated until all the gelatinized silica is thoroughly dehydrated, allowed to cool sufficiently, and then heated with 10 to 15 c. c. strong hydrochloric acid; boil, dilute and filter, washing several times by decantation and finally transferring all on the filter paper and washing well with hot water. Add to the filtrate, now a bulk of about 150 c. c., a sufficient quantity of a saturated solution of sodium thiosulphate to reduce the ferric iron to the ferrous state and immediately place in the solution a strip of sheet zinc (about 1 by 2 in. and rolled up to prevent its subsequent rising to the surface by the violent ebullition of hydrogen); nascent hydrogen and sulphur combine to form sulphuretted hydrogen, and in about 30 seconds the copper is precipitated as Cu_2S.

After allowing all the zinc to dissolve, the precipitated copper sulphide is filtered and washed, and then paper and contents transferred to a No. 1 beaker, and a solution of 5 c. c. nitric acid, diluted to 25 c. c. with hot water added; it is then heated until all the copper is in solution (usually about 5 minutes), and then allowed to cool, made ammoniacal and filtered through a 9-c. m. fast filtering paper into a 6-oz. flask, and the paper thoroughly washed from all traces of copper, keeping the filtrate down to about 60 or 75 c. c.

After cooling (or heating, according to the method of standardization employed by the operator), it is ready for titration with potassium cyanide, and by using the same solution employed for titrating the copper in 0.500 grm. charges (1 c. c. = 0.005 grm. cu.); the result read from the burette, divided by 10, gives the percentage of copper contained in the slag in hundredths of 1 per cent.

By a slight modification, apparent to those using the iodide method, the precipitated copper sulphide can be prepared for titration with the standard thiosulphate solution.

The advantages presented by this method are the ease of manipulation and the small amount of time required (60 to 100 minutes, while performing other determinations); and the complete seperation of the copper from the preponderating amounts of silica and iron present. It is also a very noticeable fact that the Cu_2S precipitated as described is more easily soluble in dilute nitric acid than when thrown down by sulphuretted hydrogen from a generator.

The points to be observed are the complete dehydration of the silica, and avoidance of sulphuric acid, which, in the presence of large amounts of lime, would tend to precipitate calcium sulphate at various times, and incompletely, during changes of temperature; it is also necessary to avoid the use of any more thiosulphate than enough to render the solution colorless.

For a long time I precipitated the copper as the metal on zinc, in the filtrate from the silica, but later abandoned this scheme on account of the time consumed in precipitating all the copper from such a bulk of solution.

THE ATLIN GOLD-FIELDS, BRITISH COLUMBIA.

Written for Engineering and Mining Journal by R. C. Lowry.

The Atlin Gold Fields of British Columbia, owing principally to peculiar legislation—legislation opposed to British traditions and suicidal in principle—earned an unenviable reputation in the past year as a placer-mining camp. Measures which aim at correcting, in part at least, the mistakes of last session are being put through the Provincial Parliament now and aliens will hereafter be able to purchase and work placer claims in British Columbia. Whether it be for its gold alluvials or its gold quartz—not to mention good copper prospects—the Atlin Camp is well worth the attention of mining men.

The value of gold won during the past year in the district—entirely from placers by an expensive method of working—cannot be gauged by the Government returns of royalty paid. A very large part of the gold taken out of the best claims escaped paying royalty, inasmuch as the wages of laborers employed were generally paid in gold-dust and the claim-owners' supplies were frequently purchased with gold-dust; so that, at best, it was but the profit from such claims that paid tax. The production of the great bulk of the claims, which either barely met expenses or were worked at a loss, paid no royalty. On 26,580 oz. of gold a royalty of 1 per cent. was collected; this would represent a total production of $425,280, allowing $16 per oz. It is estimated that the value of the actual gold output of the camp in the past year was probably not less than $1,250,000. Much of the ground was tied up by litigation until after July, and as work ended with September, the gold was taken out in two months' time.

As far as last year's work shows, this country cannot be correctly described as a good field for the individual working miner. The mining done last season is useful as indicating the value and extent of the gold-bearing deposits and as partly demonstrating the position, nature and lay of bed-rock. Whether in creek beds or in the benches on either side of the latter, excellent prospects have been found. There are several creeks where, in parts, the value of the gravel in creek bed will average over $3 per cubic yard in a strip from 5 ft. to 15 ft. deep; while, in places, the benches will give at least $2 per cubic yard for a strip of 50 ft. This may be taken as a conservative estimate founded on actual results of work done.

The conditions necessary for successful hydraulic working are existent in a marked degree. The gold-bearing creeks have generally a rapid fall—from 60 to 400 ft. to the mile—and as a rule they carry an ample supply of water; by placing conserving dams on feeders and thus controlling the flow of the creek, a scarcity of water toward the end of the season can in any case be prevented. A good dump is generally to be found; the lakes afford a practically unlimited capacity for debris and there can be no trouble on this account.

The working season extends from June 1st until September 30th. For nearly half of this period there is constant daylight and for the whole four months the climate is all that could be desired.

Leases of ground by hydraulic mining are granted for a term of 20 years. The Placer Mining Act limits the length of each lease on a creek to half a mile and in other placer grounds to an area of 80 acres, with a frontage of 1,500 ft. on the creek. The yearly rental for creek leases is $75 and for other leases $50. A condition of each lease is that a certain amount of work shall be done annually. It is open to anybody—British subject or alien—to take up ground for hydraulic mining purposes; just as anybody may stake and record quartz or mineral claims and even procure a Crown grant of the latter.

The prospecting work done on mineral properties has been sufficient to show that there are in different parts ledges of quartzite rich in free gold. The work has not advanced sufficiently to prove the extent of ore-body in any property, but it is found so far that the gold values hold for some 20 ft. or more, which is the depth reached in a few cases. Large veins of auriferous sulphides have also been found, but as yet little attention has been paid to such ores. The gold ores generally appear to carry some silver.

Bodies of copper ore, showing free copper, have been discovered in different parts of the district. In one of the largest of these veins the copper is associated with manganese.

As may be inferred from what has been said above in regard to the hydrographic features of the country, water-power can be made available in all directions for mining, milling and transportation purposes. There is sufficient timber in the vicinity of the camp to satisfy lumber requirements for some years to come.

Atlin, unlike much of the "frozen north," is easily accessible. There is regular steamer service from Washington ports as well as Vancouver and Victoria to Skagway, and the White Pass & Yukon Railroad is open from the latter port to Bennett; from this point, after the beginning of June, steamers run to Atlin. In winter communication is kept open by a sleigh road from Log Cabin (a station on the White Pass & Yukon) about 55 miles long; this trip can conveniently be made with dogs in a day and a half; there are good stopping-places on the road.

INTERNATIONAL MINING CONGRESS.

The following programme has been issued for the meeting of the International Mining Congress, which is to be held in Milwaukee, Wis., next week:

Tuesday, June 19th, 2 P. M.—Opening of convention in Exposition Building. Opening address by president. Addresses by Hon. Edward Scofield, Governor of Wisconsin, and Hon. David S. Rose, Mayor of Milwaukee. Address of president, followed by organization.

Wednesday, June 20th, 10 A. M.-2 P. M.—First order of business will be permanent organization of association and appointment of committees for that purpose, and other committees.

Papers.—"Department of Mining," Hon. L. Bradford Prince, Santa Fe, N. M. "Public Survey of Mineral Lands," Paul Clagstone, Stehekin, Wash. "Lead and Zinc Industry in Missouri," Edward M. Shepard, Springfield, Mo. "Progress and Development of Mining in Western Ontario," T. R. Deacon, Rat Portage, Ont. Evening.—Trolley car excursion to White Fish Bay.

Thursday, June 21st, 10 A. M.—Papers.—"Mining in the East," John W. Postgate, New York. "Mines and Minerals of Southern Wisconsin," Richard Kennedy, Highland, Wis. "Revision of Mining Laws," Chas. J. Moore, Cripple Creek, Colo. "Why Women Should Interest Themselves in Mining," Mrs. E. C. Attwood, Empire, Colo. Afternoon.—Trolley car excursion to the E. P. Allis Company's plant and the breweries. Evening.—Reception and out-door concert at the Deutscher Club.

Friday, June 22d, 10 A. M.—Papers.—"Wisconsin Building Stones," E. R. Buckley, State Geologist, Madison, Wis. "Mining as an Investment," N. C. Westerfield, St. Paul, Minn. "Copper Mining in Northern Wisconsin," Kirby Thomas, West Superior, Wis. "Tennessee as a Mining Field," Henry V. Maxwell, Knoxville, Tenn. Afternoon.—Boat ride on Lake Michigan.

Saturday, June 23, 10 A. M.—Papers.—"Treatment of Ores," L. D. Godshall, Spokane, Wash. "Mining-Mine Managers and Inspectors of Mines," Henry J. Brennan, Carbondale, Pa. Election of officers, etc. Closing.

GOLD IN THE DECCAN, INDIA.—Quartz reefing in the Deccan is not quite the farce many suppose, says "Indian Engineering;" 7,828 oz. gold is the reported production for 1899. The result is not what would be expected from over 1,000 persons employed both below and above ground. It is, however, better than nothing.

PETROLEUM IN ALGERIA.—United States Consul Skinner of Marseilles sends the following, dated April 27th, 1900: "M. Henry Neuberger, intrusted by the governor-general with a geological exploration in Algeria, has just furnished information as to the first part of his expedition in the Department of Oran. According to his report the West Algerian petroleum-bearing basin offers 14 districts rich in oil, extending northwest to southeast for a length, in the southern district, apparently, exceeding 124 miles. On the other coast, petroliferous levels reappear in the Department of Constantine. Applications for concessions to work these beds have already been made by 10 or more financial companies."

SUGGESTIONS FOR IMPROVED COAL MINING ACCIDENT STATISTICS.—II.

Written for the Engineering and Mining Journal by F. L. Hoffman.

(Continued from Page 652.)

Race and nationality, next to occupation, are probably the most important elements affecting the occurrence of coal-mining accidents, and should properly form one of the most important sections of coal-mining accident statistics. The fact is beyond controversy that the colored population is subject to a much higher death rate than the white, and the same holds true of certain foreign nationalities in contrast to the native-born population. What holds true of the mortality in general, is very likely to hold true of the individual liability to accidents in mining operations, but, unfortunately, the present state of mining-accident statistics does not enable us to definitely answer this question. It is one of the most urgent needs of an improved system that information should be furnished in the annual reports of State mine inspectors as to the number of men of various nationalities employed in mining operations, and corresponding information should be given as to the nationality or country of birth, of the persons killed or injured in mining operations. Part of this information is already furnished in a number of mining reports for the different States, which contain data as to the race or nationality of the persons killed or injured, but it is only for one State, that is Illinois, that information is available as to the nationality of the persons employed. For some curious reason, corresponding information as regards the nationality of the persons killed and injured is not given in the Illinois report, and the information furnished is, therefore, of comparatively little value. Since the problem has been partly solved in nearly all of the States, it should not be at all difficult to obtain the necessary information to enable the mine inspector to construct a table suggested in the outline given below:

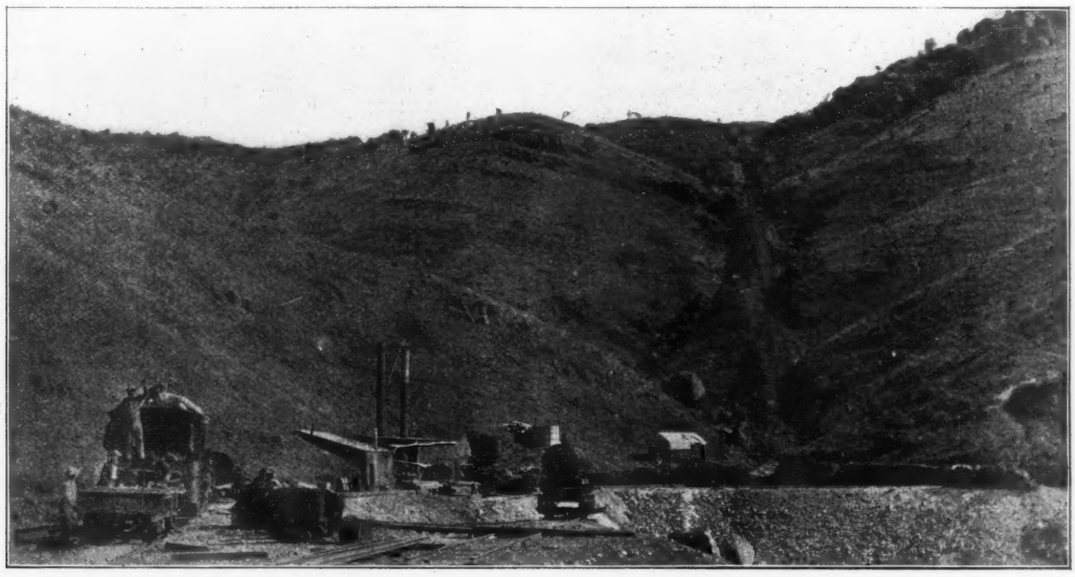
Coal Mining Accidents.—Race and Nationality.
Special Accident Table No. 3.

Country of birth.	Average number employed.	Fatal accidents.	Rate per 1000.	Non-fatal accidents.	Rate per 1000.
Born in U. S. (white).					
" " (negro)					
" Canada					
" Mexico					
" other American countries					
(Foreign countries as in order below).					
Totals					

I would suggest that the foreign countries in this table be placed in the following order: England, Scotland, Wales, Ireland, Germany, Holland, Belgium, Switzerland, Norway, Sweden, Denmark, Russia, Poland, Hungary, Bohemia, France, Italy, Spain, Portugal, other European States, China, Japan, other countries.

I have so arranged the nationalities that it is very easy to re-arrange the same according to larger groups, in the manner that it would be possible to give the information for the Germanic, the Slavonic, the Scandinavian and other general divisions of the foreign-born populations. In Southern States it would be desirable to add an additional column for the colored population, while in Western States it would be desirable to add a column for the Chinese or Japanese population. To illustrate the value of the information, I may state that the reports of the mine inspector of British Columbia contain the necessary information to establish the respective rates of accident liability for both the whites and Chinese employed in the coal mines of that Province. It is shown on the basis of the information published that the white miners are subject to an accident rate of 3.1 per 1,000, while the Chinese are subject to an accident rate of 4.8 per 1,000. If information as to the nationality of the persons employed and killed or injured could be furnished in the mine inspectors' reports, data of considerable value would be placed at the command of the mine owner or operator and the general public, which would clearly indicate the exceptional accident liability of non-English speaking nationalities. The owner or operator would be enabled to recognize and gradually eliminate the less desirable elements, and by this means gradually decrease the accident occurrence and the consequent loss of life and property.

Next to race and nationality, the most important factor in the accident occurrence in coal-mining operations, is, no doubt, the age of the person employed. It is a recognized fact in mortality statistics that general accidents are more common at the younger ages than among persons advanced in years. It is, unfortunately, impossible at the present time to state whether this is true for the men employed in coal-mining operations. For a variety of reasons, it would be of great value to have accurate information as to the ages of the persons employed, and the ages of the persons killed or injured. It should not be difficult for the clerk in charge of the pay-roll to ascertain this information from the men employed once a year, say on July 1st, and by merely indicating the age immediately after the name of the person employed, it would be possible at the end of the year to prepare a table showing the average age distribution of the men employed in any given mine, or for the entire State. It is not necessary that this information should be given for single years, at least not for general purposes, but it would be sufficient to give the information by five-year periods, as indicated in the following table:



TERMINUS OF MINE RAILROAD, ROSARIO CANYON, NACOSARI, MEXICO.

Coal Mining Accidents.—Age at Death or Injury.
Special Accident Table No. 4.

Ages.	Average number employed.	Fatal accidents.	Rate per 1,000.	Non-fatal accidents.	Rate per 1 000.
Under 15 years					
15-19					
20-24					
25-29					
30-34					
35-39					
40-44					
45-49					
50-54					
55-59					
60-64					
65-69					
70-74					
75 and over					
Total					

Part of the necessary information for the construction of the above table is already furnished in some of the State mining reports, in which the ages of the persons killed or injured are given in considerable detail. Unfortunately, no corresponding information, however, is given as regards the ages of the men employed, and it is, therefore, impossible to calculate the required accident rates per 1,000 living at each period of age. Accurate information on this point would be of very considerable value, especially to life insurance companies, and lead, no doubt, in many instances to a reduction of the rates charged by accident companies, if it were possible to ascertain accurately whether accidents are proportionately more frequent at one age period than at another.

Closely connected with the intimate relation of age to accident occurrence is the duration of employment, or of mining experience, of the persons exposed to risk of accident in mining operations. This branch of accident statistics has thus far been entirely ignored, and we

have at present no information on this point. It would be necessary to know for the men employed how many had been connected with mining operations for less than one year, one, two, three or four, etc., and similar information would be required in the case of persons killed or injured, to enable the inspector to calculate the accident liability incident to each period of mining experience. It is still an open question whether the accident liability in any given industrial occupation increases or decreases as the years of experience make men more efficient in their specific duties, or more indifferent to the dangers connected with their occupations as earlier experience had exempted them from possible fatal or injurious results. It has been seriously maintained by at least one large railroad system in this country that accidents are more frequent among men of considerable railroad experience than among the new employees, who in their anticipations of possible danger are more careful to guard against the risks incident to railroad operations. This conclusion, I am satisfied, was not based on carefully collected experience, and that to the contrary, accurate information would show that the accident liability diminishes in proportion as the mining experience of men increases. The following table will illustrate the manner in which information to this effect could be arranged:

Coal Mining Accidents—Mining Experience.
Special Accident Table No 5.

Years of experience.	Average number employed.	Fatal accidents.	Rate per 1000.	Non-fatal accidents.	Rate per 1000.
Under 1					
1-2					
2-3					
3-4					
4-5					
5-6					
6-7					
7-8					
8-9					
9-10					
10 and over					
Total					

The table requires no further explanation, but as I have said, thus far no data on this point have been collected, and it will probably be difficult for a number of years to come to introduce this element into State mining reports.

The points which have thus far been discussed have represented the most essential aspects of mining operations, and with the exception of the last table, it would not be at all difficult for mine inspectors to so arrange, or re-arrange, their reports that the information collected would be placed before the public in a uniform manner along the lines suggesting a large increase in the present usefulness of the accident statistics supplied by mining operations.

One point remains, however, which I feel is also of very considerable importance, but which, unfortunately, represents difficulties which will not be very easily overcome. It is a recognized fact that the accident statistics of mining operations are impaired in that they do not take into account the period of days or months of idleness, during which the mines were not in operation. This point is one which impairs, more or less, all accident statistics of occupations, and which thus far the best talent applied to the solution of statistical problems has not been able to solve. It has been suggested that the mines should report the actual number of days the mines had been in operation, combined with the number of men actually employed. In other words, if 1,000 men had been at work for 200 days, it is suggested that the basis from which accident rates should be calculated would be presented in the manner of 200,000 days of labor. But it will readily be seen that this would not give us the true rate of mortality, but rather a ratio useful for a variety of purposes, useful, no doubt, in comparing the liability of one district with another, but not applicable to the solution of questions pertaining directly to the accident liability of the men employed. In other words, what is wanted most of all in mining accident statistics is the true mortality rate per 1,000 men employed, irrespective of the period the men have been at work, and as long as the average number of men employed during the year is accurately stated, it does not matter for general purposes whether the men were employed one-half or two-thirds of the year, or the entire twelve months. As a partial solution of the problem and in answer to the question as to whether men employed for shorter periods are more liable to accidents than men employed during the entire year, I would suggest the following table:

Coal Mining Accidents.—Period of Operation.
Special Accident Table No. 6.

Period of operation.	Average number of men employed.	Fatal accidents.	Rate per 1000.	Non fatal accidents.	Rate per 1000.
Less than 1 month					
1-2					
2-3					
3-4					
4-5					
5-6					
6-7					
7-8					
8-9					
9-10					
10-11					
11-12					

This table has been so arranged that the men employed have been grouped according to the duration of employment during the year, and while it, no doubt, would be a difficult matter to induce mining inspectors to obtain their information in this manner, still if the data could be obtained, the results would be of very considerable value. To partly meet this demand, it would, perhaps, be possible to compromise on a table arranged in such a way as to show the production of mines according to output, indicating the occurrence of accidents in mines of small production in contrast to those of large production.

[Correction.—In the first table of the preceding article, on page 650, an error occurred in the statement of the accident rate of men employed in bituminous coal mines. The rate should have been stated as 2.1 per 1,000, instead of 1.1 per 1,000. For a full discussion of coal mining casualties by the writer, the reader is referred to "The Mineral Industry" for 1897, page 719, and to the "Engineering and Mining Journal," January 27th, 1900.]

MINERAL PRODUCTION OF GREAT BRITAIN.

In our issue for March 31st, 1900, we gave a partial advance statement of the mineral production of the United Kingdom for 1899. We have now the completed figures for the year, as issued by the British Home Office. The following table gives details of the output of minerals from coal mines, metalliferous mines and quarries in each of the years 1898 and 1899. The figures are in long tons, of 2,240 lbs.:

Description of Mineral.	Mines— Coal Mines Act. Tons.	Metalliferous Mines Act. Tons.	Quarries.* Tons.	Total output 1899. Tons.	Total 1898. Tons.
Alum clay (Bauxite)	.....	8,009	.....	8,009	12,402
Alum shale	5,820	.....	.....	5,820	13,617
Arsenic	.....	3,829	.....	3,829	4,174
Arsenical pyrites	.....	13,429	90	13,519	11,144
Barytes	.....	23,664	1,000	24,664	22,225
Bog ore	.....	.....	4,321	4,321	5,418
Chalk	.....	4,558	4,673,574	4,678,132	4,289,014
Chert and flint	.....	2,529	66,305	68,834	82,057
Clays and shale	3,090,104	113,543	11,861,210	15,064,857	14,738,474
Coal	220,085,368	.....	9,413	220,094,781	202,054,516
Copper ore and copper precipitate	.....	8,319	.....	8,319	9,131
Fluorspar	.....	733	50	783	56
Gold ore	.....	3,047	.....	3,047	703
Gravel and sand	3,850	27,341	1,740,085	1,771,276	1,625,690
Gypsum	.....	151,326	54,237	212,563	196,028
Igneous rocks	.....	96,461	4,613,464	4,709,925	4,478,308
Iron ore	7,775,868	1,955,796	4,729,666	14,461,330	14,176,938
Iron pyrites	9,819	2,411	.....	12,230	12,108
Lead ore	.....	30,990	9	30,999	32,985
Limestone (other than chalk)	32,395	588,916	11,681,579	12,302,890	11,980,578
Manganese ore	.....	415	.....	415	231
Mica	.....	.....	650	650	907
Ocher, umber, etc.	.....	4,056	12,258	16,314	19,827
Oil shale	2,210,824	.....	.....	2,210,824	2,137,993
Petroleum	5	.....	.....	5	6
Phosphate of lime	.....	.....	1,446	1,446	1,550
Rock salt	.....	179,010	.....	179,010	182,770
Salt from brine	.....	.....	1,735,883	1,735,883	1,695,895
Sandstone	105,031	239,968	4,867,625	5,212,624	5,242,115
Slate and slate slabs	.....	178,598	461,242	639,840	668,859
Sulphate of strontia	.....	.....	12,629	12,629	12,941
Tin ore (dressed)	.....	5,662	730	6,392	7,380
Uranium ore	.....	7	.....	7	26
Wolfram	.....	89	5	94	326
Zinc ore	.....	23,135	.....	23,135	23,552

*Exclusive of the produce of most of the quarries less than 20 ft. deep, but including the produce of all open workings for iron ore, bog ore, ochre, phosphate of lime, sulphate of strontia, and tin ore.

The total output of minerals of all kinds in 1899 was 280,443,898 long tons, of which 233,319,084 tons were from mines coming under the Coal Mines Act; 3,672,841 tons from mines under the Metalliferous Mines Act, and 43,451,973 tons from workings under the Quarries Act.

The following tables show the number of persons employed, and the number of employees killed or injured during the year; a preliminary statement was given in the "Engineering and Mining Journal," February 17th, 1900:

	Coal Mines.	Metal Mines.	Quarries.	Totals.
Number employed	729,009	35,157	97,995	862,161
Fatal accidents	916	56	117	1,089
Non-fatal accidents	3,904	341	1,126	5,371
Total	4,820	397	1,243	6,460
Average fatal per 1,000	1.26	1.59	1.19	1.27
Average non-fatal per 1,000	5.36	9.70	11.49	6.23
Average total per 1,000	6.62	11.29	12.68	7.50

Compared with 1898, there is an increase of 22,115 persons at the mines under the Coal Mines Act and of 926 persons at the mines under the Metalliferous Mines Act. Of the persons working at the mines under the Coal Mines Act 583,009, or about 80 per cent., were employed below ground. Of the 146,000 surface-workers 4,702, or 3.2 per cent., were females. There is an increase of 85 females compared with 1898. At the mines under the Metalliferous Mines Act 20,618 persons, or nearly 59 per cent., worked below ground, and of the 14,539 surface-workers 459, or nearly 3.2 per cent., were females. At the quarries under the Quarries Act 64,159 worked inside the actual pits or excavations and 33,836 outside. Compared with 1898, the figures of persons employed outside quarries shows a reduction of 37,890 persons employed, but this reduction is apparent, not real. It is due to the transfer of the duty of inspecting the works for making bricks, tiles, Portland cement, etc., situated outside the quarries, from the Mines Branch of the Home Office to the Factory Branch. So far as the inside workers are concerned, the figures show an increase of 1,407 persons, and no doubt at the outside works there is in reality a corresponding larger number of persons employed.

The death rate of the underground workers at the mines under the Coal Mines Act was the same as that of the year 1898, or 1.37 per 1,000 persons employed, while that of the surface workers was 0.79 per 1,000 employed, as against 0.92 for the previous year. At the mines under the Metalliferous Mines Act, the death rate of the underground workers was 2.43 per 1,000 persons employed, and of the surface workers 0.41 per 1,000. The corresponding figures for 1898 were 1.34 and 0.43 respectively. At the quarries under the Quarries Act, the death rate from accidents of the workers inside the actual pits or excavations was 1.53 per 1,000, and of the persons employed at factories and workshops outside the quarries, but connected with them, 0.56 per 1,000. The corresponding figures for 1898 were 1.59 and 0.47 respectively. The apparent increase in the gen-

eral death rate of the quarry workers is due to the transfer to the Factory Branch of a large number of workers outside the quarries, who are subject to small risks. The inclusion of these workers in former years lessened the average death rate of total number of persons employed inside and outside. The quarries proper, or inside workers, had a slightly smaller death rate from accidents in 1899 than they had in the previous year.

BY-PRODUCT COKING IN WESTERN PENNSYLVANIA.

Written for the Engineering and Mining Journal by Wm. Gilbert Irwin.

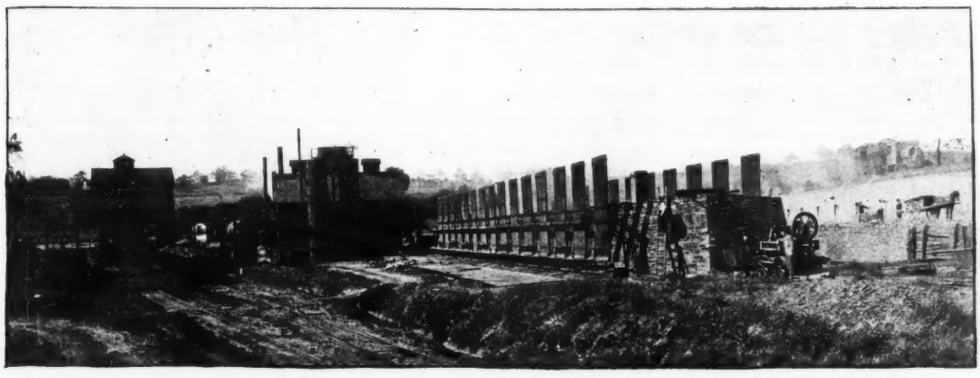
As yet the new systems of coke making have made but little progress in the Connellsville Region. There are many obstacles in the way of their rapid introduction. There are now in operation in this region upward of 20,000 ovens of the bee-hive pattern, as against a single plant of 50 ovens of the new type. We are now speaking strictly of the main Connellsville Region, for in the coal fields adjacent to the original Connellsville Region, and where coke known as Connellsville coke is being produced there are several other by-product plants. Operators are not disposed to subject themselves to any loss just at this time, preferring to reap all available profits before the dull times shall come again.

While the economic superiority of the various by-product coking systems are apparent, their introduction must be slow. It must not be inferred, however, that the operators of this region have lost sight of the value of the by-product systems. From time to time the introduction of the new systems has been considered by different operators, but as yet the only result of these plans has been the construction of a plant of 50 ovens of the Semet-Solvay type by the Cambria Steel Company at Dunbar, Pa. This plant was completed and put in operation in 1895, and is the sole by-product oven plant in the main Connellsville coke region.

Being of a type well known, the description of this plant may be omitted. Ever since its installation the plant has been in very successful operation. The charge of coal for a standard bee-hive oven is about 2½ tons, this varying slightly with the quality of coke desired and the time to be consumed in the coking process. In the Semet-Solvay ovens of the Dunbar plant the charge per oven is nearly twice that of the standard bee-hive oven. The proportion of coke produced in a bee-hive oven in the Connellsville Region is about 66 per cent., while the by-product ovens of the Dunbar plant yield 73 per cent. The Dunbar plant has an output of about 200 tons daily.

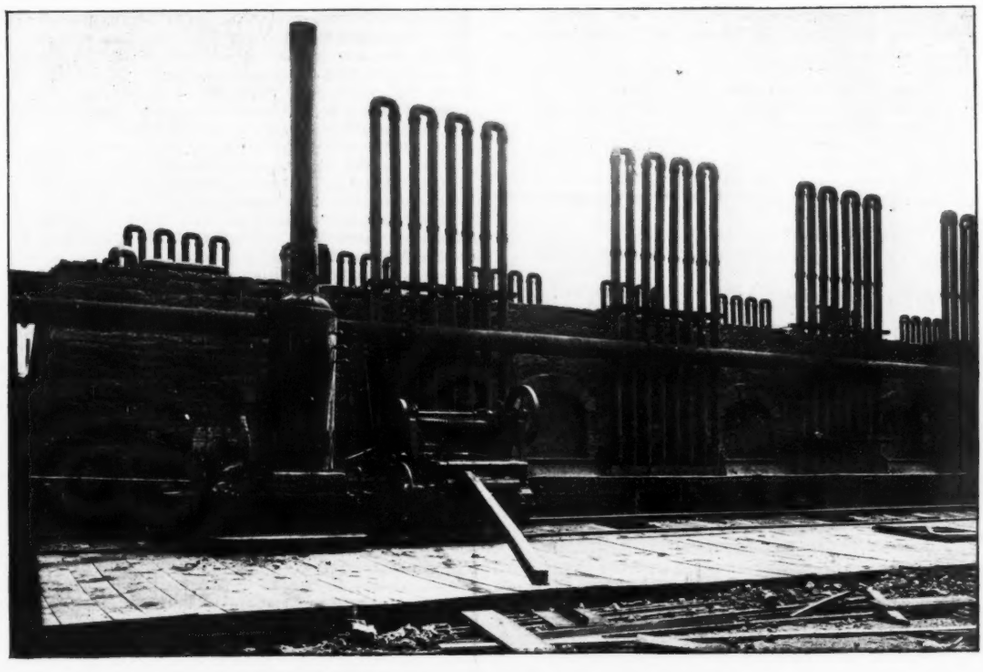
According to experiments of the late Joseph D. Weeks, retort oven coke is superior to the ordinary bee-hive coke produced from the same coking coal for all ordinary furnace and foundry purposes. The continued use of the product of the Dunbar plant in the furnaces of the Cambria Steel Company during the past 4 or 5 years fully bears out Mr. Weeks' experiments.

The difference between the new systems and the bee-hive oven is in the latter no provisions are made for the enrichment of the product, nor indeed is there any regulation whereby a uniform product may be obtained. In all of the retort-oven types the coal is confined in air-tight chambers during the time of coking, and little room is left for the expansion of the mass which makes a uniform product certain and insures the uniform distribution of cell space. As to its value for foundry purposes, extensive trials have proved its value.



NEWTON-CHAMBERS COKE OVENS AT LATROBE, PA.

The by-product oven lessens the impurities in coke through the more complete elimination of the volatile matter and the retention of the fixed carbon without permitting its combustion, as well as by excluding all foreign impurities during the coking process through a closed oven is generally recognized. Connellsville coking coal contains about 1.9 per cent. of volatile matter; bee-hive oven coke produced from this coal has about 2½ per cent., while the Dunbar by-product coke contains only about 1¼ per cent.



NEWTON-CHAMBERS COKE OVEN, WITH COKE DRAWER.

The primary constituents of Connellsville coking coal, and of all other coking coals are coke, fuel gas, ammonia and tar, while the secondary products are illuminating gas, benzol and other hydrocarbons. By the bee-hive oven operation all of these, save coke, are a total loss. For every ton of coke produced in the Connellsville Region there is given off at least 4,000 cu. ft. of excess gas, 60 lbs. of tar and 20 lbs. of ammonia. As these come from the by-product oven, these

have a market value of about $1 to the ton of coke produced. As the coke output of the Connellsville Region for the present year will exceed 12,000,000 tons, the value of these products, which are lost by the bee-hive oven, becomes evident. But this is only their value as they come from the oven. After passing through the complex processes of modern chemistry, they assume varied commercial products, and their values are greatly increased.

In the semi-coking coal-fields adjacent to the Connellsville Region attempts at coke making by the by-product systems have met with varying success. In 1895 a plant of 30 Newton-Chambers retort ovens were put in operation by the Latrobe Coke and Coal Company at Latrobe, Pa. For a time they were operated as by-product ovens, but during the last 3 years the utilization of the by-products is not attempted at this plant. A few years ago the Soxman Coke Company prepared to put a retort battery in operation at their plant near Latrobe, but later abandoned the idea. There are now 3 Slocum by-product ovens in operation at Bolivar, Pa. The Isabella Furnace Company has an oddity at its Cokeville, Pa., plant in the shape of a movable steel oven of the bee-hive type. It may also be added that the Latrobe Coke and Coal Company is using with success a coke drawing machine at its plant. With the exception of the plants now projected, this completes the by-product systems so far as the coke regions of Western Pennsylvania are concerned.

Recently, however, there has been a new departure—the shifting of the coke industry to the manufacturing centers, and this idea is being adopted. There are already in operation in the manufacturing districts of Western Pennsylvania a number of extensive by-product plants. The Cambria Steel Company originally erected a plant of 60 Otto-Hoffman ovens at its big plant at Johnstown, Pa. The operation of the plant was so successful that an addition of 100 ovens has been added, thus bringing the plant up to 160 ovens, and a further addition of 100 or 150 ovens will be made during the present year. At Glassport, Pa., near Pittsburg, the Pittsburg Gas and Coke Company has in operation a plant of 120 ovens of the same type, and the product has in every case proven equal at least to the Connellsville bee-hive oven coke. The product of this plant is at present used by the Lebanon furnaces.

Of the Semet-Solvay oven plants in operation in the manufacturing centers there are two well established plants. In 1896 a plant of 25 of these ovens was put in operation at Sharon, Pa., and two years ago the Riverside Iron Works at Wheeling, W. Va., now controlled by the National Tube Company, installed a 60-oven plant. Both of these plants are giving decided satisfaction, and the further introduction of this and other systems is now being considered by a number of Western Pennsylvania manufacturing firms. The Jones & Laughlins Company of Pittsburg has had in operation at its furnaces a small plant of retort ovens for about 4 years, but the firm makes no attempt to utilize the by-products. There, experiments have been more in the line of producing a short-time coke.

The advantages of thus having the source of fuel supply, especially when the by-products are utilized, located at the manufacturing establishments are many. The additional cost of transporting the raw coal will be more than balanced by the excess gas obtained, and the profits of the by-products utilized will go toward reducing the cost of fuel supplies. Where cities own their own gas plants the by-product ideas are receiving favorable consideration, and where this supply is controlled by private corporations the increase in profit to be made is prompting the introduction of these systems. The experiment of the Pittsburg Gas and Coke Company at its Glassport plant has been so highly successful that the Pittsburg city officials have taken up the study of the by-product oven idea as the most practicable solution of the smoke-nuisance question. Already a lengthy report upon the subject has been made by a committee appointed to go into the details, and now the by-product oven ideas are popular with Pittsburg manufacturers.

RECENT DECISIONS AFFECTING THE MINING INDUSTRIES.

Specially Reported for the Engineering and Mining Journal.

RIGHTS OF LANDLORD AND TENANTS IN OIL LANDS.—Under a lease "for the purpose, and with the exclusive right of drilling and operating for . . . gas" for a term of two years, or such time as gas shall be found in paying quantities, providing, "should gas be found in sufficient quantities to justify marketing the same," the consideration to the lessor shall be $500 per annum for the gas from each well, "so long as it shall be sold therefrom," gas being obtained in paying quantities to justify marketing, the relations of landlord and tenant is established, and unless good reason therefor is shown, the lessee must market it and pay the rent.—Carnegie Natural Gas Company vs. Iams (45 Atlantic Reporter, 54), Supreme Court of Pennsylvania.

RIGHTS IN OIL LANDS LIMITED BY EXPRESS AGREEMENT.—A lease of oil lands by which it is expressly covenanted that the lessee shall put down only one well on the premises, and where such lessee shall put down several on one side of the lands, does not require that such lessee shall be compelled to put down a well on the other half, or to surrender such half, unless it is clearly shown that he is not acting in good faith on his business judgment, but fraudulently with the intention of obtaining a dishonest advantage. Nor is a lessee of oil lands of different persons, though putting down a well on one tract near the dividing line, bound to put one down as an offset on the other side, if, were he lessee of such tract alone, it would not be profitable for him to do so.—Colgan vs. Forest Oil Company (45 Atlantic Reporter, 119), Supreme Court of Pennsylvania.

POWERS OF COLORADO STATE LAND BOARD.—The laws of Colorado (Session Laws, 1887, page 328) give the State land board full power to lease any portion of the State lands at a specified rental on the valuation to be fixed, subject to a provision giving them unlimited power as to the terms of leasing of coal land, or the time for which the demise shall run; and Session Laws, 1895, chapter 87, provide that no lease of State land shall be for a longer term than 10 years; but the latter prohibition does not apply to a lease of coal land, so as to affect the power of the board under the former statute. Under the law of 1895, a lessee may renew same in the following manner: At any time within 30 days preceding expiration, he shall notify the register of his desire, and if the State board agree as to the value of the land, a new lease may issue, bearing even date with the expiration of the old one, and on like conditions; provided, that the former valuation shall not be decreased without the parties' consent, and that the board shall not be prohibited from leasing any of the State lands to such parties as secure the greatest annual revenue. The provision as to notice of renewal is not a limitation on the powers of the board, which may or may not renew the lease, whether or not the lease be filed in time, but a restriction or an obligation on the lessee to file his petition within such time, and which would deprive him of any equitable right to insist on a renewal if he failed to do so. It is not within the power of the State board to rescind the action of its predecessor in leasing coal lands of the State, and to make new contracts which would be of any value or validity.—Colorado Fuel and Iron Company vs. Adams (60 Pacific Reporter, 367), Court of Appeals of Colorado.

ABSTRACTS OF OFFICIAL REPORTS.

Chiapas Mining Company, Limited, Mexico.

The report of this company for the year ended September 30th last has just been published. The company was formed in 1889 and works the Santa Fe property in the State of Chiapas, Mexico. The history of the company is one long record of struggles against natural obstacles such as scarcity of labor, excessive rainfall, bad communications and the refractory nature of the ore. The present report is even more unhappy than usual; for it records the results of the great flood of January, 1889. By this disaster much damage was done to the plant and to the open cut working of the mine. The experimental smelting plant that had cost £4,000 was swept away, 34 employees were killed and 50 cottages destroyed. It has cost the company £8,000 to put the mill and mine in proper shape again, and much further loss has been sustained by the forced stoppage of productive operations for six months. It is not surprising, therefore, to find that the result of the year's work is a loss of £4,703. In order to meet this state of things debentures bearing 6 per cent. interest were offered to shareholders, and £2,950 was obtained. The manager also picked out some specimen ore to the amount of 38 tons and sold it to smelters. In this way the temporary difficulty was tided over.

The shareholders have never received much return on their money. The issued capital consists of 211,760 ordinary shares of £1 each; 19,011 preference shares of £1 each, bearing a cumulative dividend of 10 per cent., and afterward ranking equally with the ordinary shares, and 2,287 founders' shares, which are entitled to half the profits after the ordinary and preference shares have received dividends equaling the amount paid up on them. The preference dividend has been paid up to September 30th, 1897, but none has been paid since; while the ordinary and founders' shares have never yielded any return at all.

The treatment of the ore at the mine has always presented great difficulty. It was originally considered essentially a gold and silver proposition and stamp mills were erected; with all the appearance of sulphides, the amalgamation became faulty, and some time was occupied in experimenting on their treatment. The sulphides contain some 3 to 4 per cent. of copper with gold and silver, while some gold and silver is found also free in the quartz. The plan now adopted is to crush and concentrate and afterward pass the tailings and the other free milling ore through the stamp mills. The concentration is, however, far from perfect, as the loss of metallic contents is 42 per cent. Hitherto the concentrates have been shipped to smelters together with some of the hand-picked ore. As has already been mentioned a smelting plant has been erected two years ago, but was swept away by the flood. It has since been decided to proceed with the erection of a matting furnace and to ship the matte to the smelters.

During the year, which consisted of only six months' active operations, 10,460 tons of ore were treated in the concentrator. The average assay value of this ore was 0.225 oz. gold, 5.5 oz. of silver and 3.42 per cent. of copper. The concentrates obtained amounted to 428½ tons of assay value, 2.1 oz. gold, 62 oz. of silver and 40 per cent. of copper. The amount of hand-picked ore was 38½ tons, of average assay value of 1.5 oz. gold, 75 oz. silver and 42 per cent. copper. The stamp mill treated 7,936 tons of tailings and 2,178 tons of free milling ore, and the yield was 603 oz. gold of average fineness of .812. In addition to the concentrates 630 tons of middlings were saved, to be treated afterward when the matting furnace is in operation. The price obtained at the smelters for the concentrates and hand-picked ores averaged £40 per ton, an increase on the preceding year's figure due to the increased price of copper.

No new ore bodies have been discovered during the year, but the known bodies have been proved to extend both laterally and in depth. The average contents of the ore continue to decrease slightly. As the properties are in charge of Mr. H. F. Collins, and as Mr. Frecheville is a director, the great natural disadvantages may yet be overcome.

GERMAN COAL TRADE.—During the first three months of the present year Germany exported 4,045,550 tons of coal (against 3,362,644 tons during the corresponding period of last year), chiefly to Austria-Hungary and Holland; 505,987 tons (against 500,948 tons) of coke, chiefly to France and Austria-Hungary; 145,177 tons (against 99,429 tons) of briquettes, chiefly to Switzerland and Holland, and 28,350 tons (against 4,855 tons) of lignite, chiefly to Austria-Hungary. On the other hand, Germany imported during the same period 1,265,439 tons (against 1,125,852 tons) of coal, almost entirely from Great Britain; 128,660 tons (against 106,124 tons) of coke, chiefly from Belgium; 29,218 tons (against 19,663 tons) of briquettes, also chiefly from Belgium, and only 811,180 tons (against 1,916,961 tons) of lignite, entirely from Austria-Hungary. With this latter exception, however, which is solely due to the Austrian miners' strike, both exports and imports of mineral fuel have, it will be seen, increased appreciably.

UNDERGROUND WORKINGS AT THE PARIS EXPOSITION.

The "Galeries Minieres" and the "Monde Souterrain," underneath the Trocadéro Park, which is included in the Paris Exhibition, were inaugurated on May 5th and opened to the public on the following day in a nearly complete state, thus presenting a great contrast to the Exhibition generally, says the London "Colliery Guardian." In addition, however, to one ticket between 10 and 6 or two tickets between 8 and 10 and after 6, the visitor has to pay a franc (20c.) for each of these two underground exhibitions in the general Exhibition.

Near the "Exposition des Phares," or Lighthouse Exhibition, is the large iron headgear (intended for the Anzin Colliery in the Departement du Nord) that can be seen from the Avenue du Trocadero outside the Exhibition railings. The engine-room, gained by a flight of steps, contains the 3,000-H. P. compound hoisting engine, made by M. Dubois of Anzin, the largest yet turned out in France, that will be eventually erected on the Arenberg shaft of the Anzin Colliery, for hoisting more than 6 tons of coal in a single lift from the depth of 500 m. in less than a minute. The flat rope is of hemp; and the three-decked cages carry four tubs on a deck, the shaft being 5 m. in diameter. By way of contrast to this engine there is in the engine-room a model, to one-tenth scale, of a horse-gin dating from 1800; and a step in advance is shown by a model of the first hoisting engine used in France that dates from 1802, while models to one-fifth scale of various mine shafts show the progress that has been successively accomplished during the last century. There are also full-sized specimens of the shaft guides, made of timber, as employed ih 1851, 1855, 1875 and 1880, as well as those of iron in 1885. On either side of the entrance the walls are adorned by large sections of coal measures with mine workings; and a great many photographs show the surface works of several French collieries. Immediately on entering the visitor is struck by a trophy composed of Anzin briquettes, coke and "boulets," or patent fuel of ovoid form; and the four faces bear portraits of the Anzin worthies, Pierre Taffin, Viscount Disandronin, the Marquis de Cernay and the Duc de Croy. There is also a bust of Pierre Joseph Fontaine, 1810-1877, inventor of the first mine safety appliance, dating from 1847, and a working model of which is exhibited. The attendant winds up the rope on a barrel by a crank-handle, thus raising the cage in the shaft, and then suddenly lets the handle go, when claws engage in the guides, and arrest the cage.

As the engine is not yet in working order, visitors are let down in a lift, made by MM. Roux, Combaluzier & Cie., one side of which is a glass plate, so that intermediate landings can be seen during the descent. Miners in white uniform with the traditional crossed hammers embroidered on the collar, and wearing the regulation stout leather hats for protection from falling stones, etc., either descend with the visitors or meet them on arriving at the bottom, and then conduct them through the workings, which are well lighted by incandescent electric lamps at frequent intervals. The main trolley-way, kept up with iron frames of the Bruay type, is laid with three lines of way, which, however, merge into a single one on the road becoming narrower, when the roof is supported by timber; and, indeed, all varieties of timbering are exemplified in the remainder of the factitious workings. At one point is an engine-room, apparently hewn out of the rock, where an electric pump is supposed to force the mine water to the surface; and at another there is an underground stable with a real live horse. To the right is turned off a stall in a thick coal seam, in two beds separated by a shale parting, that dips at a sharp angle; and an illustration is given of the standard pit sunk by the Lens Company in such a case, instead of deepening the main shaft. The iron headgear for the pit is erected in an excavated chamber; and the winding engine is arranged to work with an electric or a compressed-air motor at pleasure, while the top and bottom landings are fitted with Reumaux safety appliances. Hand-worked and compressed-air rock-drills of various types are on view, in charge of life-sized figures, as also is a mechanical coal-cutter like that which is being tried by M. Fayol at the Commentry Colliery. There is a full-size reproduction of a set of mine tubs hauled by an electric locomotive, as at the Marles Colliery, for bringing to the shaft from 1,500 to 1,800 tons of coal daily. So far as it is possible to show factitiously where no real coal exists, an illustration is given of a working place occupied by several men, represented by life-size figures, and also of a driving in a thick coal-seam with complete gobbing, and working by descending under the goaf, for preventing underground fires.

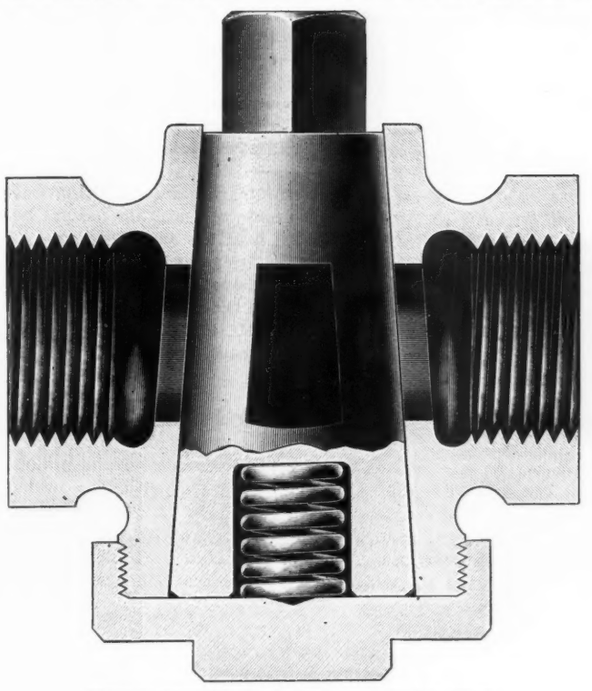
By a sudden transition, chiefly distinguished by the absence of timbering, the gallery, or heading, enters an iron pyrites mine like that of Saint-Bel, near Saint-Etienne, worked by blasting with dynamite, the shot-holes being bored by electric rock-drills. Deposits of galena, argentiferous blende and rock salt are traversed in succession; and then the mining of slate at Angers is illustrated, after which comes a Colorado gold mine, for seeing which an extra 50 centimes (10c.) is demanded, and a Transvaal gold mine, for which there is no extra charge.

These galleries have been driven very sinuously underneath the east wing of the Trocadero Palace, the exhibition of China and that of the Dutch East Indies, the exit being near the cascade that was made in 1878. Whereas the "Galeries Souterraines" or "Exposition Miniere Souterraine" (as the workings already described are variously named), illustrate mining of the present day, the other underground exhibition, the "Monde Souterrain," which occupies a site underneath the Trocadero cascade, is claimed to represent all the marvels that now exist or have existed in the earth's interior. There may be seen the very earliest mine workings, and again those of the Middle Ages, archaeological monuments faithfully reproduced, the chief episodes of geological history, the consolidation of the earth's crust, a French lake during the carboniferous epoch, and various celebrated underground grottoes, while the entrance is guarded by an immense iguanodon of the secondary, and the exit by a megatherium of the tertiary epoch.

Hall No. 1 affords a representation of the first mine workings effected by the Phoenicians about 3,000 years ago, with slaves bringing down the cupriferous rock, while the water is taken off by a series of wheels with floats. The next hall represents a lead mine of the sixteenth century, with a curious winding engine formed by a double wheel turned by hand, and a ventilator consisting of enormous bellows worked by pedals. In a painting that represents our globe's formation a first crust of lava has just solidified on the surface of the earth in fusion, being cracked in places, and thus allowing some incandescent matter to appear. In the representation of a French lake during the carboniferous period the shores are seen to be covered with luxuriant vegetation, while a torrent hurries along trees, plants and moss to form the coal that is now turned to such good account, while the only fauna of the period, an enormous salamander and gigantic libellulae, appear in the foreground. On the seashore with coral reef of the secondary period, are ammonites and belemnites, with ichthyosaurus, plesiosaurus and achaeopteryx, while in a reproduction of the Trocedero gypsum deposit, as it is supposed to have existed at the beginning of the tertiary period, there is a tropical flora with the palaeotherium, and (in hall No. 11) concurrently with the appearance of man upon the earth, is the giant cervus of the quaternary period. There are also reproductions of the blue grotto at Capri, the Padirac grotto with underground river in the south of France, the hermits' grotto of the Dead Sea, an Etruscan sepulchre, the catacombs at Rome, and many other wonders.

A SPECIAL STOP-COCK FOR COMPRESSED AIR PIPES.

We illustrate herewith a special stop-cock that has met with great favor of late among the mines, for use in compressed air pipe lines. This cock is being manufactured and sold by the American Engineering Works of Chicago. It is made with iron body and brass plug ¾ in., 1 in.



SPECIAL STOP-COCK FOR COMPRESSED AIR PIPES.

1¼ in. and 1½ in. sizes for use in air pipes. A 1-in. all brass cock is made for use in connection with air drills. The great advantage of this stop-cock over the ordinary form is that there is no possibility of workmen leaving it loose, with consequent and often considerable loss of air. In many forms of stop-cocks the plug is larger at the top than at the bottom and is held in place by a nut at the bottom. Workmen will frequently loosen this nut, knock the plug up slightly in order to loosen it, to enable them to open or close the cock and then leave it in a leaky condition. The stop-cock, as illustrated herewith, has the plug reversed, being larger at the bottom than at the top and is held tightly in place by a spring. If it does not turn easily a slight knock on top of the square head will loosen the plug and enable it to be turned, but it will not be left in a leaky condition, for the spring will keep the plug well seated.

LIMESTONE BRICK.—United States Consul B. H. Warner, Jr., at Leipzig, Germany, calls attention to the manufacture in Germany of brick from sand and lime. The process has lately been improved by William Schwarz, who found that it was necessary to give the mixture an exact quantity of moisture, as well as to prepare and mix it at a certain temperature, so that the combination of the silicic acid in the sand with the lime should begin to take place before the mixture is pressed into brick forms. In this way, all aeration of the lime is avoided during the manufacturing process. Mr. Schwarz has invented a process by which the amount of moisture can be regulated—mixing dry sand with lime in a vacuum, so that any aeration of the lime by the carbonic acid of the atmosphere is impossible. At the same time, the temperature is raised to and kept at a certain degree by steam heat, and then a certain quantity of moisture in the form of steam is admitted. For employing this process, a machine has been built in which the preparatory and working process can be carried out—a mixing machine provided with revolving arms for mixing the sand and lime, steam tight, with an air pump attached to exhaust the air and also to draw out any excessive quantity of moisture. Inside is a tube for admitting the exact quantity of necessary steam.

MINERAL COLLECTORS' AND PROSPECTORS' COLUMN.

(We shall be pleased to receive specimens of ores and minerals, and to describe and classify them, as far as possible. We shall be pleased to receive descriptions of minerals and correspondence relating to them. Photographs of unusual specimens, crystals, nuggets and the like will be reproduced whenever possible. Specimens should be of moderate size and should be sent prepaid; we cannot undertake to return them. If analyses are wanted we will turn specimens over to a competent assayer, should our correspondent instruct us to do so and send the necessary money.—Editor E. & M. J.)

147.—E. E.—Neither of the specimens you send looks to be gold-bearing. No. 2 is apparently a somewhat weathered granitite; No. 3, a fine grained quartzose rock that may be of volcanic origin, the sample being too small to determine except by examination with the microscope. It is doubtful if analysis would show gold in economical quantities.

148.—Lapis Lazuli.—The Field Museum of Chicago exhibits what is perhaps the largest block of lapis lazuli in this country. It was found in an ancient grave in Peru. The piece probably weighs 100 lbs. and is beautifully polished. Lazurite or lapis lazuli has never been found in the United States in specimens worthy of a cabinet. Eastern Asia and Chili are main producers. Lazurite contains the following minerals: Hauynite, amphibole, muscovite, calcite, pyrite and in some varieties a number of other minerals.

149.—From the Connecticut Zinc Company's mine near Joplin, Mo., there was taken out a short time ago a mass of sphalerite, zinc sulphide, which weighed one ton and was almost wholly ore. It had a beautiful coating of dolomite, calcite and galena crystals.

150.—Native leaf copper of extraordinary beauty, the thin leaves protruding from a rock, called a "volcanic cement," the cement being between walls of trachyte, is reported from the Summit District, 35 miles south of Tacoma, Wash. The leaf copper often protrudes several inches beyond the matrix and invariably shows beautiful iridescence. Four claims named the Vanguard Group in the canyon of the Big Marshall River on the southwestern slope of Mt. Ranier, cover the exposures. A shaft 16 ft. deep shows cracks or seams in the rock filled with the thin sheets of copper.

151.—M. A. S.—Ocher.—The sample of ocher is of fair color and quality. It is an impure limonite, hydrous sesquioxide of iron. The value of an ocher deposit depends on its color, fineness of grain, uniformity of tint and ease with which it can be mined and put on the market. The crude rock is washed, dried and ground. (See "Engineering and Mining Journal" for April 28th, 1900, page 510.) Any of the large makers of prepared paints buy ocher. The price at New York for common grades is $9.25@$10 per ton, while best French ocher brings as high as 2½ cents per pound.

152.—R. McC.—Clay.—Your inquiry regarding a clay suitable for cleaning and polishing metal is not precise enough to be answered definitely, but in general it may be said that the supply of such material as you describe of ordinary quality is so ample as to leave little profit for a producer not having the best shipping facilities. Material of extra quality can find a market more easily. If you send sample we will give an opinion as to its worth.

153.—S. C. K.—Hornblende Rock.—The specimens you send are apparently from a gneiss or schist. The dark portion is principally hornblende and the white is quartz. Such hornblende bands or segregations are very common in many gneisses and schists and represent the more basic elements in the rock which segregated when the rock was molten or as a result of dynamic action. There is nothing about the specimens to show that they contain gold or other metals of economical importance and the rock probably has no more value than that underlying many square miles in Connecticut.

QUESTIONS AND ANSWERS.

(Queries should relate to matters within our special province, such as mining, metallurgy, chemistry, geology, etc.; preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot give professional advice, which should be obtained from a consulting expert. Nor can we give advice about mining companies or mining stock. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers must send their names and addresses. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Mica.—Will you kindly inform me if there is any value to a large bed of mica, which cannot be gotten out in sheets? I know of a deposit in the West which consists of small flakes about the size of oatmeal. Are there not deposits of this in the East which would make the Western deposits worthless to mine? The difference in freight being too great.—H. H. L.

Answer.—A bed of mica from which no sheets could be taken would have little or no value. The waste in mining and trimming sheet mica is very large, and supplies easily all the demand existing for scrap or ground mica. The location of the deposit is also against its value.

Garnet.—Can you give me information, either through your paper or otherwise, in regard to garnet? How extensive are the American deposits? Where are they located? What use is made of it? What is its market value? Where can it be sold?—G. H. D.

Answer.—Garnet is found in the Adirondacks, in North Carolina, in Pennsylvania and several other localities in this country. It is used as an abrasive, but the demand is moderate, as corundum and emery are preferred.

You will find full information about garnet in the volumes of "The Mineral Industry."

Calcined Magnesite.—Can any of your readers inform me to what extent, if any, oxide of magnesium (MgO) prepared from magnesium carbonate by burning off the carbonic acid gas, will hydrate or take up carbonic acid gas from the atmosphere?—A. N. S.

Answer.—This question was published in the "Engineering and Mining Journal" May 19th, 1900, and an answer there given. In further answer Messrs. Steinbart & Vogel, of London, send the following:

"If magnesite is burnt at a low red heat it will hydrate with comparative ease on exposure to air. In fact, pieces of magnesite thus prepared will, by placing into water, become nearly transparent. Carbonic acid is not easily absorbed by soft-burnt magnesite."

Briquetting Fine Ores.—Can you give me a cheap method for preparing very fine concentrates for use in the smelter, without the necessity of using a briquetting machine? We have very superior lime and common brick clay on the ground.—H. M.

Answer.—The lime will be of service to you in briquetting your concentrates, but not the clay. The lime will serve as a binder, and will also be of value as a flux in smelting. We hardly think, however, that you can get along without a machine. If your smelter is of moderate size, probably a hand press, such as is used in small brick-yards, would answer your purpose, and could be had at a moderate cost.

An article on the "Use of Fine Concentrates in the Blast Furnace" was published in the "Engineering and Mining Journal," September 9th, 1899. Although written with special reference to iron smelting, that article has much information that would be of service to you.

OPENING FOR COAL IN TRIESTE.—The State Department Bureau of Foreign Commerce has received a letter from a firm in Trieste (Fr. Buzzi d'J.), which says: "Would you be kind enough to favor us with the addresses of the largest and most responsible coal producers in Virginia, Pennsylvania, Alabama, and Ohio. We are in possession of several names of coal-export firms in New York and Baltimore, but steamship companies and customers here prefer to deal with the collieries direct."

Not wishing to discriminate between coal companies, the Bureau of Foreign Commerce takes this method of bringing the matter to the attention of those interested.

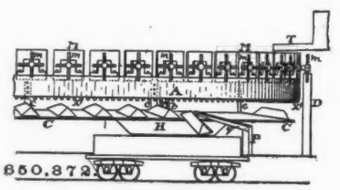
PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects, issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending May 29th, 1900.

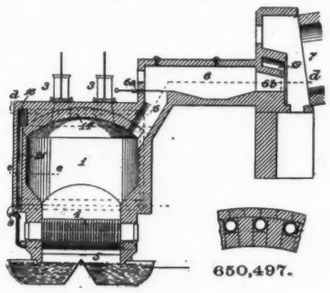
650,372 and 650,373. CASTING APPARATUS. David T. Croxton, Canal Dover, and Samuel W. Croxton, Cleveland, Ohio. The combination of a rotary wheel, molds rotatably mounted thereupon, an ingot receiving and conveying platform suspended from said wheel and underneath the molds, and the post having an arm projecting over the platform and in the path of the ingots.



650,518. PROCESS OF MAKING DIOXIDE OF BARIUM. Claude Savigny, Lyons, France. The process consists in mixing hydrated crystallized baryta with carbon in a finely-divided condition, next heating the mixture for the purpose of driving off the greater part of the water, next placing the magma in a crucible lined with a carboniferous substance, next subjecting said crucible to a high temperature for the purpose of effecting the complete transformation of the hydrated baryta into anhydrous and porous baryta by means of the reducing action of the finely-divided carbon, and finally dioxidizing the anhydrous baryta.

650,581. AMALGAMATOR. Andrew M. Ernsberger, New York, N. Y., assignor of one-half to Artemus Ward, same place. A framework adapted to carry horizontal revolving drums at a distance apart and above the same a vertical disintegrating cylinder, an amalgamated belt upon the drums and means for its driving, revolving and stationary disintegrating means within the vertical cylinder.

650,497. GAS PRODUCER. William Swindell, Allegheny, Pa. The combination, in a gas-producer, of a gas-generating chamber, and an annular series of vertical air-heating pipes built into the wall of and surrounding the generating-chamber.


650,497.

650,596. PIG-EJECTOR. Frank L. White and Mary G. Semple, administratrix of James Semple, deceased, Pittsburg, Pa. The combination with a series of molds, of mechanism for supporting and moving said molds, and a pig-knocker located adjacent to the molds, a motive cylinder arranged to actuate the pig-knocker, and mechanism for operating the valve controlling the fluid-supply to the cylinder, said mechanism being actuated by the means for causing the movement of the molds.

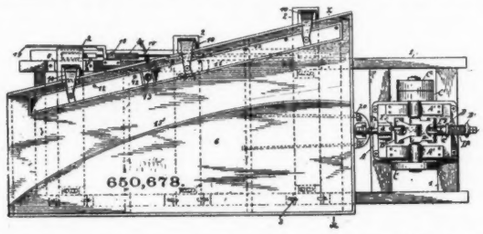
650,627. COAL-AUGER COUPLING. Cecil R. Anderson, Allegheny, Pa. The combination of a coupling or uniting member having a bore, two members adapted to be united in the bore of said coupling member with the faces of their extremities in contact, the exterior surfaces of the coupled members at the meeting-point of their extremities being separated from the internal wall of the uniting member by a space adapted to receive dirt crowded thereinto by the coming together of the extremities of the coupled members.

650,642. HOISTING-BUCKET. James E. Henry, Sheboygan, Wis., assignor of one-half to the C. Reiss Coal Company, same place. A separable hoisting-bucket having its sections in pivotal union, a cross-head with which the bucket-sections have slide connection, a cylinder in link connection with said bucket-sections and provided with an inlet designed to have tight temporary connection with a nozzle of a conveyor for fluid under pressure.

650,646. APPARATUS FOR ELECTROLYTIC REDUCTION OF ORES. Frederic H. Long, Chicago, Ill., assignor to Ross J. Beatty, trustee, Muncie, Ind. The combination with the reducer vessel, of an open partition extended across said vessel, an anode projected past the partition, a terminal cathode, an interposed diaphragm and suitable means for circulating the ore charge between the anode and diaphragm.

650,648. SMELTER'S CRUCIBLE-SHAKER. William S. Mather, Newark, N. J. The combination with a supporting-surface upon which the crucible may stand, of a shaking-lever fulcrumed upon said supporting-surface and having means for grasping said crucible near its top.

650,673. ORE CONCENTRATOR. Willis G. Dodd, San Francisco, Cal. The combination with a concentrating-table having a plane upper surface, of an ore and water feed arranged thereabove, a curved obstructing-rib on the face of the table following a generally-inclined course from the upper head portion to the lower tail portion of the table, of devices for regulating the lateral inclination of the table, and of means for imparting reciprocating motion to the concentrating-table.


650,678.

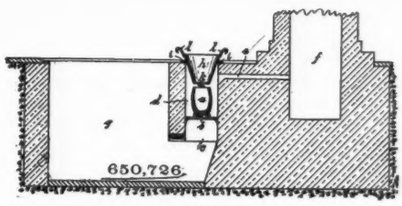
650,682. ROLLING-MILL. Sigmund V. Huber, Youngstown, Ohio. The combination of a three-high mill having three or more reducing-passes, three or more series of driven feed-rollers in line with said passes on each side of the mill, mechanism for driving two or more of said series of rollers on each side in one direction and one or more of the series on each side in an opposite direction, a mechanism on each side of the mill for transferring articles.

650,686. CORE-LIFTER FOR DIAMOND DRILLS. George Leask, Nanaimo, Canada. A cutter-head provided with longitudinal ports and valve-chambers, a core-barrel provided with diagonal guide-passages communicating with said valve-chambers, a valve-casing mounted in the cutter-head and formed with the lateral ports and the longitudinal ports, a tubular spring-actuated valve and the independent ball-valve, spring-actuated valves mounted in the valve-chambers, and gripper-pins having a sliding engagement with the core-barrel.

650,689. COMPOSITION FOR FIREPROOFING WOOD. Leopold Litynski, August Rodakiewicz and Feliks Kurowski, Lemberg, Austria-Hungary. A composition of matter for impregnating inflammable materials, consisting of a solution of water, potassium carbonate and boracic acid, in the proportions substantially as specified, mixed with a solution of water, magnesium sulphate, potassium carbonate, ammonium sulphate, and boracic acid.

650,697 and 650,698. PROCESS OF MAKING GAS. Charles Whitfield, Kettering, England. The process of producing combustible gas consisting in passing air only through the lower part of a mass of combustible fuel so as to raise the fuel to a high temperature, and thereby to produce combustion in the lower part of the fuel, and to produce and maintain incandescence in a mass of fuel above the zone of combustion, feeding green fuel on the top of the mass of fuel, injecting hydrocarbons distilled from said green fuel into the mass of incandescent fuel above the zone of combustion produced by the air, and withdrawing the resulting gaseous products from the mass of fuel at a point below the green fuel at the top of the mass and the point where said hydrocarbons are injected.

650,726. MELTING FURNACE. Friedrich W. Minck, Berlin, Germany. The combination in a melting-furnace, of a vertically-extended hearth, a chimney, a lateral flue substantially near the top of and connecting said hearth with the chimney, a fire-grate, ash-pit below said grate, and an ash-receiving box extending laterally from below said pit and vertically upward beside the hearth, a melting-pot borne upon said grate, an annular supporting-ring at the top of said hearth, and a flaring hopper provided with handles and with an opening of substantially the same diameter as the mouth of the melting-pot, suspended directly over the melting-pot and forming an intermediate space for the escape of noxious gases to the chimney.

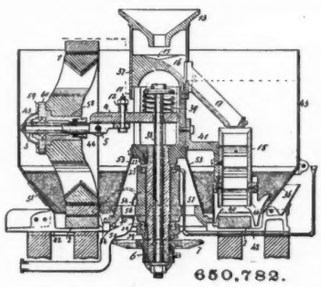

650,726.

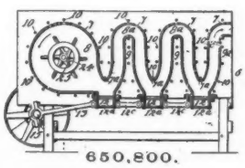
650,734. REPAIR APPARATUS FOR SURFACE OIL-PUMP RODS. Richard E. Smith, Lima, Ohio, assignor to The St. Mary's Drilling Company, St. Mary's, Ohio. In a pump-rod repair device, the combination with a frame or casing, of a sprocket and ratchet wheel journaled therein to rotate together, means for attaching a chain to said casing, a level journaled in the casing, two pawls pivotally attached to the lever on opposite sides of the fulcrum of the latter, and means for positively holding the pawls in engagement with the ratchet-wheel, said pawls operating to alternately engage the ratchet-wheel as the level is oscillated back and forth and communicate a continuous rotary movement to the ratchet and sprocket wheel.

650,747. PROCESS OF TREATING CARBIDE OF CALCIUM. John Bilbie and Henri Drivet, London, England. The process consists in treating the pieces or grains thereof with an essential oil, then coating the pieces or grains with petroleum, and finally again treating the carbide with an essential oil.

650,763. METHOD OF OBTAINING ALUMINA FROM ITS ORES. Emile Raynaud, Tessenderloo, Belgium. The process consists in mixing with the previously-crushed ore a quantity of sulphureted compounds of alkaline metals smaller than would be necessary for forming aluminates, heating the mixture to dark-red heat in a suitable furnace and submitting the mass issuing from the furnace to a lixiviation and thereafter to the action of a current of sulphurous-acid gas in combination with water, separating the solutions holding alumina from the residue containing impurities, heating thereafter these solutions and calcining the precipitate obtained which yields alumina and sulphurous gas.

650,782. GRINDING-MILL. Robert Ellin, Yonkers, N. Y. A crushing or grinding mill, consisting of a pan, an annular die, a wheel moving over the die, a vertical rotary shaft for driving the wheel, a top piece mounted on the shaft and having a concaved feed-surface in its upper end and a lateral outlet leading from said feed-surface, an inclined chute secured to said top piece and leading from said feed-furnace, a bracket attached to the shaft and extending laterally therefrom, and a vertical spreader-box secured to said bracket and having its upper open end arranged directly under the lower end of the inclined chute and its open lower end located directly over the annular die.


650,782.


650,800.

650,800. APPARATUS FOR SEPARATING METALS FROM THEIR ORES, ETC. Frederick H. Smith and Lucius V. Bond, Denver, Colo., assignors of two-thirds to John P. Ibson, same place. The combination of a casing inclosing an air-blast compartment and a serpentine passage leading therefrom to the outer air, means located in the blast-compartment for inducing an air-current adapted to carry the said material into and through said passage, the casing inclosing the blast-compartment being provided with an opening through which the material to be treated is drawn by the induced air-current, mineral-receptacles consisting of closed boxes located beneath the depending partitions or bends of the serpentine passage, and means for imparting a reciprocating movement to the said boxes which are adapted by their reciprocation to concentrate the mineral at the bottom under a layer of material which protects them from the blast.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy.

Week Ending May 5th, 1900.

777 of 1899. AMALGAMATOR. R. Kirkman, Swansea. Apparatus for use in amalgamating slimes and other ores, consisting of a cylinder containing a series of perforated amalgamating plates.

7,918 of 1899. ELECTROLYTIC DEPOSITION OF COPPER. E. Dumoulin, Paris, France. For forming copper strips in an electrolytic bath on a rotating mandrel, forming a helical groove on the mandrel containing an insulating material.

11,678 of 1899. ELECTROLYTIC PROCESS. H. Becker, Paris, France. Method of collecting metals lighter than the fused electrolyte from which they are generated.

11,963 of 1899. ARTIFICIAL CRYOLITE. D. Matthews, London. Producing an artificial cryolite by acting on common salt solution with hydrofluoric acid in presence of alumina.

11,964 of 1899. SEPARATING TITANIC ACID FROM BAUXITE. D. Matthews, London. Method of separating out titanic acid from bauxite.

23,031 of 1899. COOLING TUYERES. W. J. Foster, Darlaston, Staffordshire. Method of circulating water through the tuyeres of blast furnaces.

23,203 of 1899. COKE MAKING. Universal Fuel Company, Chicago, U. S. A. Method of producing good coke from coals that contain sulphur.

269 of 1900. CYANIDE VAT. A. James, London. An enameled iron vat for cyaniding in which there are no pipe joints, such joints being the chief drawback in enameled iron vats.

1,893 of 1900. ZINC RETORT. A. G. Clark, Cincinnati, Ohio, U. S. A. A lining for zinc distilling retorts that is not affected by iron.

PERSONAL.

Mr. A. B. Turner, of Boston, has been visiting the Mass Copper Mine, Michigan.

Prof. Alexander Agassiz has been visiting the Calumet & Hecla Mine in Michigan.

Mr. S. G. Endicott has been visiting the Centennial Copper Mine near Houghton, Mich.

Mr. Walter Wells, of the Ontario Bureau of Mines, has been visiting the North Hastings District.

Mr. G. W. McNaughton, of Warren, Pa., is inspecting some mining property near Millbridge, Ontario.

Mr. Louis Janin, Jr., has returned to New York, after examining pyrites deposits in Louisa County, Virginia.

Mr. M. H. Lyon, mining engineer, of Joplin, Mo., has gone to South Dakota to examine some property in the Black Hills.

Mr. R. G. Breden, of Paterson, N. J., is in North Hastings, Ontario, to open up iron ore property in which he is interested.

Mr. T. C. Archer, who recently resigned his position as mine superintendent at the Mountain Copper Mines, is temporarily in San Francisco, Cal.

Mr. E. C. Wood of Rossland, B. C., recently visited a number of mines in the interior of the province, including the Kimberly group near Kamloops.

Prof. George C. Tilden, of London, Eng., passed through San Francisco, Cal., last week on his way from San Salvador to London via New York.

Mr. S. C. Hodge, Pacific Coast manager of the "Engineering and Mining Journal," has established his headquarters at the Mills Building, San Francisco, Cal.

Mr. H. D. Edwards, assistant manager of the Mountain Copper Company, Limited, at Keswick, Cal., will be in charge during the absence of Manager Wright in Europe.

Mr. Sam Meigs, of Dolomite, Ala., has been appointed by Governor Joseph F. Johnston to be assistant state mine inspector in Alabama, vice Mr. Frank Culverhouse, resigned.

Mr. Richard Eames, Jr., manager for the Arizona Gold and Copper Company, will shortly visit all the important smelters and copper mines of Arizona. He is now at Patagonia, Ariz.

Mr. D. W. Brunton, mining engineer, of Denver, Colo., sailed for Europe last week, accompanied by his wife and 2 sons. They expect to be absent until about the middle of September.

Mr. R. S. Moore, vice-president and superintendent Risdon Iron and Locomotive Works of San Francisco, is in Honolulu, Hawaiian Islands, superintending the installation of a large pumping plant, capacity 100,000 gals.

Mr. J. B. Gibson, who has been secretary of the Birmingham, Ala., Commercial Club for several years, has been re-elected to the position. Mr. W. H. Kettig, of the Milner-Kettig Hardware Company, is president of the club.

Messrs. E. B. Jones and D. R. Harrington, of the graduating class in the Colorado School of Mines, are at Scofield, Utah, where they accepted engineering positions in the properties wrecked by the disaster of several weeks ago.

Mr. O. B. Read, of Charlotte, Vt.; Mr. and Mrs. E. M. Rose, of Farmington, Ill., and E. C. Spalding, of Webster, Mass., stockholders in the Notaway Gold and Copper Mining Company, visited the Notaway property near Central City, Colo., this week.

Mr. George D. Roberts and party have sailed on the schooner "Samoa," from San Francisco, to prospect the eastern coast of Siberia for gold in the interests of the East Siberia Syndicate of London, which has purchased concessions from a Russian company organized by Col. Vladimir Vonliarjiarski, of the Russian Imperial Guard.

Mr. John Stroghn, for some years past superintendent of the Gauley Mountain Mining Company, at Anstid, W. Va., has resigned and is considering opening a mine on the Kanawha River at Kanawha Falls in conjunction with Mr. H. A. Robson, of Cotton Hill, W. Va., former State Mine Inspector.

Prof. W. G. King of Butte has been elected by the trustees of the Butte School of Mines to the chair of chemistry and metallurgy. Prof. King is a graduate of the Western Reserve College of Cleveland, O., and of the Cooper Institute of New York. He has been employed in Butte by both the Montana Ore Purchasing and Parrot companies.

Mr. C. C. Sharpe, of Corning, O., general superintendent of the Sunday Creek Coal Company, and Mr. E. B. Pedlow, of New Straitsville, O., general superintendent of the Columbus & Hocking Coal and Iron Company, both of whom are largely interested in the Raven Coal and Coke Company, near Connelton, W. Va., spent June 4th at that place.

Mr. Wm. Roslington, representative of the firm of F. W. Braun & Co., Los Angeles, Cal., has resigned his position with that firm, in order to return to Vancover, B. C., to take a position with the British Columbia Assay and Chemical Supply Company in that city. Mr. Roslington formerly was with this company, but had lately been making a business trip for the Los Angeles firm through Colorado.

Mr. Eugene Teats, mining engineer of New York, recently returned from Dutch Guiana. Mr. Teats has been in South America for more than a year, in charge of a big placer mine owned by a Philadelphia company. The ground lies near the boundary line between French and Dutch Guiana, and is only 40 miles from the coast. The best values are found in the slate bed rock.

Messrs. R. Kondo and M. Otagawa, of Tokio, Japan, both of whom are interested in the Ashio copper mines, 120 miles from Tokio, Japan, are inspecting Michigan copper mines. The Ashio mines resemble the mines of the Butte district in that the ores are a copper pyrite principally. They employ about 3,000 men and make 700 tons of refined copper monthly. The development on modern lines dates back about 20 years. Before which time all mining in Japan was conducted almost entirely by human labor and very few of the shafts were more than 200 ft. deep. The deepest shafts of the Ashio are now down more than 1,500 ft.

OBITUARY.

H. C. Daft. auditor of the Oliver Iron Mining Company, died June 9th at Ely, Minn., from consumption. He arrived at Ely June 7th in hope of bettering his health by a summer in the pine woods, and was accompanied by his wife. His body was sent to Pittsburg for burial.

SOCIETIES AND TECHNICAL SCHOOLS.

Institution of Mining and Metallurgy, London.—The report of the council for the year ending February 28th, 1900, shows that the membership roll is now as follows: Honorary members, 6; members, 332; associates, 151; students, 154; total 643. These figures show an increase during the year of 58 of the various classes. The papers read and discussed have kept up to a high standard. The council says: "The financial statement shows the position of the Institution to be in a satisfactory state, which could, however, be still further improved were the arrears of subscriptions more promptly paid up. Although the expenses connected with the publication and distribution of the 'Papers and Transactions' have increased, and will be likely to still grow in the future, the income from annual subscriptions alone is well in excess of all expenditures, and applications for membership continue to come in."

Engineers' Club of Cincinnati.—At the last regular meeting of the club Mr. J. H. Hilton, chief engineer of the Brackett Bridge Company, gave a description of the construction and erection of the steel wire cables for a suspension bridge over the Ohio River between Rochester and Monaca, Pa., about 20 miles below Pittsburg. The main span is 800 ft. long between towers, the back span on the Monaca side 400 ft. long from the tower to the anchorage, the back span on the Rochester side 400 ft. long to a steel bent supporting the cable and one end of a truss span, and from the bent to the anchorage is about 260 ft., making the total length between anchorage pins about 1,865 ft. and the cables about 1,900 ft. long. The cables are composed of 7 strands each, each strand having 288 wires and being about 2½ in. in diameter, making the finished diameter about 7 in. Before beginning the work of making the strands a single wire was put in the position which the cables would occupy, and allowed to take its natural position. Points were marked on this wire for the ends and where it crossed the towers, after which it was hauled back and used as a guide wire for all others. Suitable supports were placed at intervals of about 50 ft., on which the strands rested during construction. Each strand virtually consisted of a single wire, the wire being drawn off the drums on which it was wound and looped over a pin at either end, the required tension being secured by a "tension space" where the wires sagged the proper amount. An "erection cable" was put up just above the location for the cables, resting on temporary wooden supports placed on top of the permanent steel towers, and the strands drawn over into place, suspended from trolleys running on the erection cable, and connected to the anchorage pin at each end. When the strands were all in position and the binding wires removed, the individual wires fell into place quite accurately, after which the cables were wrapped around with wire in the usual manner by a special machine designed and furnished by the company that rolled the wire.

INDUSTRIAL NOTES.

The Empire Foundry, of Marysville, Cal., has shipped a No. 5 hydraulic monitor, with appurtenances, to a gravel mine at Hoki Taka, New Zealand.

The Sullivan Machinery Company of Chicago reports the sales of drills and equipment to the Independence Mine, 4 drills to B. Clark Wheeler for Cripple Creek property, also a large number of sales of 1 and 2 drills each.

The St. Louis Blast Furnace has been incorporated, with a capital of $200,000. The new company will take over the Missouri Furnace Company of St. Louis. The incorporators are Edwin C. Cushman, John D. Filley, Charles A. McNair, Arthur P. De Camp and Wm. Yule.

The Denver Fire Clay Company, of Denver, Colo., reports the shipment of a car-load of crucibles to San Francisco; a car of crucibles for 3 car-loads for old Mexico. The company has 3 carloads for old Mexico. The company has increased its machinery plant during the past year and reports general trade is excellent.

A company, composed of York, Pa., men, with a capital of $300,000, has leased for 20 years the mining right of 6,200 acres of land in the Tonawanda Indian Reservation, Genesee County, New York. The company will erect a mill at Buffalo and work a gypsum deposit into calcine plaster. The new plant will be in operation by November next.

The contract for the machinery for the smelting plant to be erected at Florence, Colo., by the Rocky Mountain Smelting Company has been let to the E. P. Allis Company of Milwaukee, Wis. The order is for 2 tandem compound Corliss engines, each of 250 H. P., with the necessary shafting and pulleys, and two No. 8 Connellsville blowers. The cost will be about $20,000. The Allis Company has recently sold 4 boilers, 150 H. P. each, to the Congress Gold Company, at Congress, Ariz.

The Weber Gas and Gasoline Engine Company, of Kansas City, Mo., has installed a 50-H. P. gasoline engine at the Hacienda Angostura, San Luis Potosi, Mexico, directly connected to a centrifugal pump which has a capacity of 8,000,000 gals. of water every 24 hours. The company also reports the sale of a 15-H. P. gasoline hoist and equipment to the San Cristobal Gold Mining and Milling Company, Lake City, Colo.

The Chisholm, Boyd & White Company, of Chicago, report a splendid business with their improved white mineral press, having sent presses recently to the following concerns: Smelting Corporation, Limited, Ellesmere Port, England; the Mountain Copper Company, Limited, Keswick, Cal.; the Boston & Montana Consolidated Copper and Silver Mining Company, Great Falls, Mont. The two first concerns were repeat orders. This press uses burned lime as the bonding agent and handles calcines, concentrates, fine ores and flue dust.

The progress of mechanical draft as a substitute for chimney draft is shown by the statement recently made by the B. F. Sturtevant Company, of Boston, Mass., pioneers in this line, that its sales of apparatus for stationary boiler plants in 1899 were over three times those for 1898 and that the company sales now amount to nearly 1,000 H. P. per day, about equally divided upon stationary and marine plants. A number of the technical schools have installed experimental mechanical draft apparatus principally for instruction and numerous graduating theses are concerned with the investigation of this subject.

The Nordberg Manufacturing Company, of Milwaukee, Wis., on the day following the entry of the British troops into Johannesburg received a cable order for 4 hoisting engines, similar in all respects to those installed by the company at the Arcadian, Osceola, Isle Royale and North Tamarack mines and calculated to work to a depth of 3,000 ft., from the Randfontein Estates Gold Mining Company, Limited, of Johannesburg, whose engineers were in the copper country during the winter and examined carefully the working of the hoists. To enable it to handle this business the Nordberg Company has ordered additional machine tools, including another large cylinder boring machine, a duplicate of that already installed in the works, and one of the largest of its kind in the United States.

TRADE CATALOGUES.

The Hilbert-Freiberg Machine Company, of Cincinnati, O., issues an illustrated folder showing its power post hammer. This appliance is stated to be of the best material, the hammer

head, which weighs 50 lbs., being of a special grade steel and all parts proportioned for long wear.

The Leschen-Macomber-Whyte Company, of Chicago, Ill., is distributing to its friends and patrons a neat and handy vest pocket memorandum book. The company handles iron and steel wire rope of every description; copper wire, bare and insulated, manila rope, tackle blocks, etc., also acts as sales agent for Stephen Humble's patent safety detaching hook for mine cars.

Wm. Ainsworth & Sons, of Denver, Colo., are sending out illustrated circulars describing their No. 0 precision balance with 5-in. beam. This balance is stated to be designed and constructed with the object of making it the most accurate on the market and is furnished adjusted to any sensibility from 1/100 to 1/500 mgm. The edges and bearings and all surfaces forming contacts with the beam and hanger are of agate. The beam is of a special palladium alloy, and, it is stated, will remain in adjustment through a range of temperature from 60° to 100° Fahr. The beam and index are provided with specially ground reading glasses. The circular shows the new star wheel adjusting device mounted on the center edge back of the beam, the rider apparatus and the skeleton hanger.

The Lidgerwood Manufacturing Company, of New York City, has issued for free distribution a new book of 200 pages on the "Lidgerwood Cableway," which should interest every engineer and contractor having to hoist or convey material of any kind in an expeditious manner. The book is profusely illustrated with half-tones and pen sketches of the cableway. On some work a new type of radial traveling cableway has been employed, wherein the head tower is arranged to travel about the other, thus covering a wide area for excavating and delivering material. A chapter on the "Lidgerwood Cableway on the High Seas" presents a complete description of the Miller Conveyor for coaling vessels at sea, recently accepted by the United States Navy. Views are also given of the traveling dock cableway with overhanging boom for discharging coal from vessels as well as for reloading barges and boats.

Several important plants for dam building are shown and described, notably a curved masonry dam. Consolidated Gold Fields, Johannesburg, South Africa; New Croton Dam, New York; the Austin Dam, Texas, etc. The work of the Lidgerwood traveling cableways on the Chicago Drainage Canal is presented, giving complete data. "Dredging by Cableways" shows the Lidgerwood apparatus finishing and cleaning out the great Mexican drainage canal near the City of Mexico, using the Hayward self-filling bucket. Placer mining by means of the cableway with self-filling drag bucket, is illustrated by a plant furnished the German Bar Mining Company, at Virginia City, Mont., which employs a Lidgerwood cableway of the radial type, having a patented drag bucket of novel construction. Following chapters show cableways for digging sand and gravel, for building bridges and piers, for handling pipe, quarrying, open pit mining, coal stripping, etc. The Lidgerwood transfer for discharging vessels and for use in coaling sheds, gas houses, and large manufacturing plants is shown with special attention to the Miller-Covell double swing fall rope carrier.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods of any kind, and shall be pleased to furnish them information, catalogues, etc.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, and have no pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

Oil Exports.—In May the United States exported 12,133,900 gals. crude oil; 1,524,752 gals. naphthas; 61,283,047 gals. illuminating oil; 6,278,708 gals. lubricating and paraffin; 2,652,300 gals. residuum; total, 83,872,707 gals., against 87,216,379 gals. in May, 1899. The total exports in the five months ending May 31st, 1900, amounted to 366,926,186 gals., against 353,508,795 gals. last year.

ALASKA.

Douglas Island.

Alaska Treadwell.—The May report shows 46,419 tons ore worked by the 2 mills, the one of 300 stamps running 29¾ days and the one of 240 stamps 8 1/3 days. The ore yielded $95,237. There were 839 tons sulphurets saved, valued at $35,116. This makes the gross earnings for the month $130,353. The expenses in round numbers were $31,500, making the net proceeds $98,853. The ore averaged $2.95 per ton.

ARIZONA.

Santa Cruz County.

Bradford.—This mine near Patagonia in Santa Cruz County, Arizona, is being operated under the direction of Prof. William Blake, of the Arizona School of Mines. It is a deposit of argentiferous galena.

Yavapai County.

Congress.—This mine, 60 miles north of Prescott, is reported sold to New York men, who have started an extensive system of improvements in the operation of the mine and have decided to practically reconstruct the milling plant. The main shaft on the property will be continued to 5,000 ft., nearly double the present depth. The mill now has 40 stamps and 60 more, it is said, are to be added. The tailings from the stamp mill are treated in a cyanide plant which handles 100 tons per day.

CALIFORNIA.

The California Petroleum Miners' Association has completed its organization by the election of the following directors for the first year: L. P. Crane, E. D. Berri, John C. Kirkpatrick, Prof. E. P. Heald, W. B. Simmons, H. S. Field, G. H. Jones and B. Marks, all of San Francisco, and O. A. Lane, of Oakland; W. B. Winn, of Berkeley, and F. E. Harmon, of Belvedere.

Amador County.

(From Our Special Correspondent.)

Peerless.—The shaft is now down 260 ft. on the vein, which improves with depth. The ledge is 4 ft. wide, showing high-grade quartz. Henry Osborne is superintendent.

Butte County.

(From Our Special Correspondent.)

Golden Trout.—Twelve men are employed at this mine on the South Fork of the Feather River, 4 miles from Lumpkin. The 3-compartment shaft is down 100 ft. Tunnels have been run into the hill from each side of the South Fork, and rock will be worked from both sides of the river.

Calaveras County.

(From Our Special Correspondent.)

Mountain King.—The incline shaft at this mine, 3 miles northwest from Copperopolis, is down 200 ft. in good milling ore. The property adjoins the Royal and is being worked by W. Wamble, the owner.

Plymouth Rock.—About 12 men are at work enlarging the works at this mine, 6 miles north from Milton. Two leaching tanks are completed. A great deal of development work has been done on the property, which is a concentrating proposition .

Sampson.—At this mine in the Glencoe District, a tunnel is being run by the owner, S. H. Krim. The lead is about 3 ft. wide, the croppings showing a fine prospect. The tunnel when in 300 ft. will give about 800 ft. of backs, and a good mine will be developed if the ledge holds out.

Kern County.

(From Our Special Correspondent.)

Randsburg District.—A run of 100 tons of ore from the Baltic Mine netted $20 per ton. The Big Butte is working 15 men. The ledge in new ground now being worked assays $40 per ton. The last clean-up at the Little Butte, from a run of 24 tons of ore taken from the west drift on the 200-ft. level, yielded over $42 per ton.

The Yellow Aster Mining Company has contracted for a water plant at Goler, which will have a capacity of 200,000 gals. per day, to cost $75,000. From Goler the water will be pumped 1,400 ft. higher to the company's mines. At the last meeting of the stockholders of the company the following officers were elected: John Singleton, president and general manager; C. A. Burcham, vice-president and secretary, and the National Bank of California, treasurer.

Lassen County.

(From Our Special Correspondent.)

Daisy Dean.—The shaft is down 200 ft., where a station has been cut and drifts have been run to the northwest and southeast, 150 and 100 ft., respectively. The ledges, from 3 to 10 ft., carry good milling ore. The pay chute, known to be 600 ft. long, is supposed to be an extension of the Juniper ore body. The mine is equipped with a Merralls mill and a fine hoisting plant. The latter will probably be enlarged, as it is the intention of the management to sink to the 500-ft., and then cross-cut. A 3,000-ft. tramway is to be constructed from the mine to the mill; 20 men are employed under the superintendency of C. L. Crane.

Nevada County.

(From Our Special Correspondent.)

Perrin.—Work on this mine on Wolf Creek, below Grass Valley, has begun by an Eastern syndicate, which has bonded the property.

Work & Pay.—This claim east from Nevada City, on the Quaker Hill lead, has been bonded by a syndicate composed of New York, Boston and San Francisco men, for $25,000. It is intended to erect modern machinery and sink to the main channel.

Shasta County.

(From Our Special Correspondent.)

Afterthought.—A contract has been made in San Francisco, for a hoist and an engine for use at this mine. Development work under the supervision of William McDermott is progressing rapidly.

Little Nellie.—The tramway, 460 ft. long from this mine to the railway, has been completed and shipments of ore to the smelter will soon begin. The mine is near Iron Mountain.

Siskiyou County.

(From Our Special Correspondent.)

Cherry Hill.—Twenty men are at work, and good ore has been developed. The mine on Cherry Creek is operated by a syndicate which holds a bond at $25,000.

Michigan.—This claim in the Gazelle District, about 1½ milecs from the Dewey Mine, has been bonded by San Francisco parties. The ledge is said to be 18 ft. wide.

Tuolumne County.

(From Our Special Correspondent.)

Dinsmore Consolidated Gold Mining Company. This company has been organized with a capital stock of $200,000 to work a property 2 miles from Parrotts Ferry. The directors are A. Hayward, C. D. Lane, L. W. Shinn, C. W. Fox and J. P. Hopkins.

Golden Key Mining Company.—This company, whose mines are located in Tuolumne County, has elected the following directors: L. M. Sherwood, president; Edwin L. Forster, first vice-president; William H. Snyder, second vice-president; Clarence C. Nauman, secretary; Frank A. Wallin, treasurer; Mrs. L. M. Sherwood, A. Higbie.

Mount Jefferson.—The milling plant is to be increased, as large bodies of ore have recently been developed.

Sugarman.—This pocket mine on Bald Mountain, one mile northeast from Sonora, has lately produced several thousands of dollars in gold from an upraise in the tunnel, which has been run 800 ft. The property, which is owned by Sonora parties, yielded handsomely in early days.

COLORADO.

Chaffee County.

(From Our Special Correspondent.)

Gold Bug.—Another fine shoot has been cut at the 300-ft. level in this claim at Salida. The ore is pyritic iron and the vein measures 8 ft. wide.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—P. Petersen to E. P. Waters, half interest Comstock No. 2 lode in Central district; H. R. Burk et al. to North American Gold Mining and Development Company, Pay Rock lode in Pleasant Valley district; H. A. Campbell to J. W. Campbell, parcel of land in Russell district; A. Mishler to F. K. Wagner et al., portions of Alma, Maliaska and Lucky Purchase lodes, Enterprise district; W. Leigh to C. Leigh, the Harry Leigh and Jesse Leigh lodes in Wisconsin district.

Arizona.—This group of claims in Elkhorn Gulch is reported sold by General J. C. Thompson, of Cheyenne, Wyo., to a company for $60,000. Active development is to start at once.

Gettysburg Mining Company.—A new shaft house 22 by 40 ft. in dimensions and plant of machinery has been erected and the Illinois shaft is to be sunk and extensive developments carried on. E. M. Willard, of Rollinsville, Colo., is manager.

Gilpin County Ore Shipments.—The shipments of smelting and crude ores, concentrates and tailings from Black Hawk to the Denver smelters and outside points were 251 cars, or 4,643 tons. The shipments were light, as production was hindered by surface water.

Gold Coin Placer and Mining Company—Columbus, O., people are interested in 2 miles of placer and lode grounds along North Clear Creek. A flume 2,000 ft. has been built and washing with giants will begin in a few days. The company will save the old tailings and slimes of the creek, besides running out the slag piled up in the creek from the old Hill smelter, which is used by the smelters for fluxing. Harry J. Sears, Central City, is manager.

Grinnell Gold Mining and Milling Company.—Manager Frank C. Young deposited 608 oz. of gold worth $10,000 from May run on mill ores. The Cornish pump is gradually lowering the water.

O. K.—As soon as connections can be made with the Bobtail tunnel levels, sinking will begin to 150 or 200 ft. deep. F. B. Mechling, Central City, is manager.

Peru.—J. Robb and L. Humphrey have taken a lease and bond and put up a shaft building and

machinery. They will sink at once. L. Humphrey is manager.

Raven.—Schneider & Company, of Central City, have taken a lease and bond and are preparing to sink.

Seneca Gold Mining and Reduction Company—Ore is being taken out and preparations are being made to sink the shaft, now 370 ft. deep. New York capital is interested.

Woodbury Gold Mining Company.—St. Joseph Mo., parties are getting ready to resume developments by sinking the shaft, now 200 ft. deep. There is a good shaft building and plant on the property.

Gunnison County.

Black Copper.—A new strike of rich ore has been made at this Gunnison mine and shipments have increased.

Eureka.—Paterson & Mosely have sold to D. C. Tobin of Leadville their lease on the Eureka on Lake Hill. Mr. Tobin has also secured a bond from the American Smelting and Refining Company of Leadville, owners of the property, for $25,000. A force of 20 men is put on and shipments are made regularly.

Humboldt.—A new shaft house is being erected and the shaft is being retimbered for 250 ft. from the surface. Regular shipments begin again about June 17th.

Smith Anthracite Coal Mine.—Orders have been received to resume work on this property and 100 men will be put to work at once. The output will be 10,000 tons per month.

Smith Concentrator.—This plant at Crested Butte will start up in a few days for its season's work.

Hinsdale County.

(From Our Special Correspondent.)

Conklin.—T. J. O'Donnell has secured a lease on this property at the head of Cimarron Creek near Lake City and will put on a force at once. The Conklin has not been worked since the early '80's, when it produced extremely rich ore.

Golden Fleece Mill.—Two new Huntington mills will be in operation shortly.

Hiawassee Mining and Milling Company.—This Lake City company intends to develop its properties on a large scale and will begin erecting a mill shortly.

Maro.—Smith & Gaines, who are working this Boulder Gulch property under lease, have ore of shipping grade in both levels. They will build a mill shortly for the second grade product.

Megunticook Gold and Copper Mining and Milling Company.—This company has purchased the Contention property near Lake City for $30,000, and work has started with a large force of men and 2 air drills.

Red Rover.—Superintendent D. A. Farrell, of Lake City, announces that he will soon begin erecting a large mill to be modeled after the Camp Bird Mill in Ouray County.

Tobasco Mining and Milling Company.—This Lake City company expects to build a mill and will systematically develop a large group of claims.

Sacramento Group.—Coffin & Slough will develop this group in Burroughs Park this season. Large bodies of pyrite iron ore are blocked out and will be shipped.

Lake County.

(From Our Special Correspondent.)

Both the Bimetallic and the Union smelters are closed down. How long the shut-down will last is not stated, but at the Union plant men are arranging for many improvements.

Zinc Shipments.—The zinc product from the Maid & Henriett and the 2 concentrating mills now average about 300 tons per day, and several big shipments to Belgium were made this week. Nearly all of the product is sent to foreign plants.

Home Extension Mining Company.—Boston capitalists are at the head of this company which has secured property embracing a number of houses and lots at Second and Oak Streets. Most of the money has been paid over to the property owners and the company will complete the deal shortly and sink to catch the extension of the Home Company ore shoots.

Home Mining Company.—Much prospecting is done on all 3 shafts, which are now producing 400 tons daily. A large amount of the tonnage is iron ore, but it is of very good grade and heavy shipments net good profits.

Maid of Erin Silver Mines Company.—These lessees on the Maid & Henriett and Adams ground have 26 sets of lessees at work. The tonnage in May was 6,136 tons of all classes of ore, including 3,220 tons of zinc; the rest was iron, carbonate and sulphide.

New Monarch Mining Company.—Shipments are made from both the New Monarch and Winnie claims. Most of the ore, however, is a good sulphide from the big sulphide bodies opened in the lower contacts of the Winnie. The Rio Grande Ibex branch has put in a switch.

Poverty Flat Mining Company.—Development work was resumed on the Jason claim this week and shipments will be made from a low grade iron body. In the meantime the new shaft on the Seeley claim is being sunk.

Mineral County.

Commodore.—This mine at Creede is shipping 4,500 tons of crude silver-lead ore monthly. The mine is opened through 5 tunnels, the highest 2 not being used. The 3 others, about 400 ft. apart vertically, are from 3,000 to 4,000 ft. long, all being connected by upraises. The ore is trammed to the mouths of tunnels, whence it goes to ore bins at the railroad by bucket tramway. The power plant comprises a 5-ft. water wheel, driven by water through a 26-in. pipe line, a 5-drill air compressor and a 135-H. P. electric generator. It is intended later on to use an electric hoist.

Wooster Tunnel.—This tunnel at Creede, formerly known as the Nelson, is now in about 7,000 ft. and drains the Amethyst, Chance and United mines. It has a fall of 6 in. to 100 ft. Ore from the Bachelor and Chance is transported through this tunnel. W. G. Boyle is manager.

Ouray County.

(From Our Special Correspondent.)

Calliope.—Col. Nix has disposed of his Calliope interests to Chicago men, who are now operating on an extensive scale. J. W. McMahon, formerly superintendent of the Wedge, has been engaged as general manager.

Camp Bird Mines and Mills Company.—New buildings have been erected near Ouray and 100 more miners put on. Plans have been ordered for a large cyanide plant, the machinery for which will be here by June 15th. This plant will be among the largest in Colorado.

Gray Eagle.—W. H. Strout has secured the Sky Rocket mill near Ouray for treating the output from the Gray Eagle Mill.

Queen of Ouray.—Prevost & Phillips have struck a continuation of the famous Bachelor vein on the west side, and are shipping frequent lots of high grade silver-lead.

Rock of Ages.—Leasers Wing & Greenfield have struck a bonanza, consisting of a large streak of 12-oz. gold ore in the Rock of Ages, near Ouray, an abandoned claim on the west side.

Treasury Tunnel Company.—The Treasury tunnel will be started again in the immediate future. Jas. Long, formerly manager of the Grizzly Bear, has been installed as general superintendent.

San Miguel County.

(From Our Special Correspondent.)

Liberty Bell Gold Mining Company.—After several months' idleness pending the erection of a cyanide plant, the Liberty Bell 40-stamp mill ½ mile above Telluride is running full capacity. The framing for 40 more stamps is completed, and the installation of machinery has begun. The addition will be finished this summer, when the mill will be able to treat over 300 tons daily, 4 tons for each stamp in 24 hours. The cyanide plant can treat the tailings from such a tonnage. The Liberty Bell mines, in Cornet Creek, are reported to be in fine condition. J. W. Mercer of Telluride is general manager.

Tomboy Gold Mines Company.—General Superintendent John Herron of Telluride has just finished installing in the mill crosscut tunnel the largest hoisting plant in the district, with a capacity of handling from 400 to 500 tons daily from a depth of 500 ft. The shaft is now down between 800 and 900 ft. below surface and 200 and 300 ft. below the mill level, and a steady improvement in gold values is reported. The mill is treating from 200 to 225 tons of mineral in 24 hours.

Teller County—Cripple Creek.

(From Our Special Correspondent.)

Calhoun Gold Mining Company.—In the injunction suit against the Triumph, the decision allows the Triumph to continue to mine the ore in dispute, but orders it to deposit the net smelter returns with the court. The Triumph was allowed upon application to the court a reasonable cost for the mining. The suit is to be tried on its merits at an early date.

Elkton Consolidated Gold Mining Company.—During the week there were held meetings of the Raven, Elkton and Tornado companies to ratify the deal which was made some time ago. The Raven and the Tornado companies are now practically dead, and the Elkton has considerably more territory, making it one of the strongest companies of the district. Since the consolidation the company has declared a dividend of 3c. per share. The issued stock of the new company is 2,500,000 shares.

Little Nell Gold Mining Company.—On this company's property near Elkton the company is working shaft No. 1, which is down about 50 ft. and still sinking. It is intended to sink 200 ft. before cross cutting. A new shaft house has been built and a plant of machinery installed. On No. 2 workings there is also a plant of machinery and a new shaft house. This shaft is worked under lease. On No. 3, which is worked by lessees, the shaft is down about 75 ft. There is a little ore here, but no machinery has yet been put in. The property was partly obtained from the Arequa Townsite. W. L. Clark, of Cripple Creek, is superintendent.

Specimen Gold Mining Company.—At a meeting of the stockholders of this company the sale of the Specimen claim to J. A. Sill as trustee for $156,000 was ratified. A dividend of 13¾c. per share was also declared, or about $153,400 to be distributed among the stockholders. This, with some small obligations that the company has to meet, will take all the money from the sale. As this claim is all the ground that the company owns, its affairs will be wound up and it will cease to exist. Some think the claim was bought for the Union Company, others that it is for John Dern, who owns a large amount of Union stock. It is also rumored to be purchased for W. S. Stratton.

IDAHO.

Shoshone County.

Alice.—This group on Reddy Gulch, between Wallace and Mullan, is reported bonded by Finch & Campbell of Spokane. The group was owned by J. H. Foss and H. J. Rice. Carbonate ore and galena have been struck on the property. Not much development work has been done, but the indications are said to be very flattering.

Hecla.—The mill is running 2 shifts, although it is not crowded, receiving about 150 tons of ore daily, while it can handle 200 tons. James Gearon is mine superintendent and Bert Wilson is mill superintendent.

Standard.—This company has begun another tunnel which begins in the Campbell tunnel 1,500 ft. from the portal, running to the right at an angle of 66 degrees from the Campbell tunnel, to cut the Standard vein in about 1,000 ft., and the same distance east along the vein from where that tunnel taps it.

MICHIGAN.

Copper—Houghton County.

At the annual meeting of the Adventure Mining Company, June 7th, the old directors were re-elected as follows: T. H. Mason, W. R. Todd, C. J. Devereaux, I. H. Meserve, H. A. Wyman, John Barker of New York, and T. B. Dunstan of Michigan.

At the annual meeting of the Rhode Island Copper Company, held June 7th, the retiring directors were re-elected. The board was increased from six to seven members by the election of John Barker. The officers elected are: President, T. H. Mason; vice-president, C. S. Devereaux; secretary and treasurer, W. R. Todd.

Calumet & Hecla.—Late advices received at the Boston office state that the fire in the mine is fully extinguished. It may be several weeks before the damage is repaired at No. 2 Hecla, but it is expected that work will be resumed in the other shafts next week.

Mohawk.—The first cargo of mohawkite, the recently-found copper-nickel arsenide, will be shipped soon to the Orford Copper Works at Constable Hook, N. J., owing to the extensive experience of the Orford Company in smelting the nickel-copper ores of the Sudbury District, Canada. The content of copper in mohawkite is phenomenally high, averaging about 60%, with about 7½% of nickel. The fissure vein of mohawkite crosses the Kearsarge amygdaloid copped lode at very nearly right angles and has been traced to surface from the point of discovery, a distance of 138 ft., and has been drifted upon for about 100 ft. The widest point so far found is 28 ins. and the narrowest about 5 ins.

Tamarack.—A very quick job just finished was the erection of the new Nordberg hoist, which is similar to those recently installed at the Osceola. Taking down the old hoist necessitated removing some 100 perches of masonry, replacing them with a heavier foundation before anything could be done on the new hoist. Yet the change from old to new took less than 3 weeks. The engine is a 32 by 72 duplex. It replaces a 28 by 60 engine. The diameter of the drum is 18 ft. 6 ins. and the length 18 ft. The rope grooves on the drum are all finished in a turning lathe. The engine is of the heavy box girder type of frame.

(From Our Special Correspondent.)

The output for May is slightly smaller than that of previous months. This reduction is due to labor difficulties and the fire in the Calumet & Hecla Mine.

Oneco.—No. 1 shaft is down 330 ft. Only 2 drills are used.

Rhode Island.—A new shaft house at No. 2 is being erected, a frame building like that at No. 1. No. 2 is a 2-compartment shaft, instead of a bucket. A new hoisting plant has been installed.

Tamarack.—The new hoist at North Tamarack is 2,300 H.-P. The shaft is solid, being 29 ft. between cranks and 17 in. in diameter at the bearings. The drum is a double cone with 8 ft. between cones. It is 18 ft. 6 in. in diameter, 18 ft. wide and will carry 5,028 ft. of 1¼-in. cable.

Copper—Ontonagon County.

(From Our Special Correspondent.)

Adventure Consolidated.—This mine is employing about 125 men at present.

Michigan.—This mine is shipping 5 cars of rock a day, over the Copper Range and Atlantic & Superior roads, to the Atlantic Mill. About 1,100 tons will be shipped for the mill test.

Iron—Menominee Range.

At Crystal Falls the American Mining Company recently abandoned the Kimball and the Volunteer explorations. At the Kimball a vein of low-grade ore was shown up, but nothing of value was found at the Volunteer. At Iron Mountain the same company has virtually abandoned the Cuff property on account of the quality of the ore. The Minnesota Iron Company has stopped work at the Wauceda explorations and also at the Dexter on the Marquette Range. The Menominee Exploration Company has abandoned the Fogerty property at Iron River.

Lotta.—This old exploration north of Michigamme Mountain, has been sold to Chicago people, who will organize a company and explore the ground more thoroughly. Casper Aberle has been carrying on work for nearly a year. It is proposed that the mine will be renamed the Monarch.

MINNESOTA.

(From Our Special Correspondent.)

The major part of the Bessemer (Rockefeller) fleet is still in ordinary at Duluth, waiting for rates to go to $1.25. A considerable number of lumber ships have turned ore the past week, to some extent neutralizing the effect of the Bessemer withdrawals. The main purpose of this withdrawal is to use up the surplus tonnage in the Bessemer Company's hands, preventing a still further decline. Contract ore is moving as fast as ever, but shipments are lighter than 2 weeks ago.

The town of Virginia is already being rebuilt better than before. The loss was about $450,000, with insurance of less than $100,000. The rate of insurance was 8½%. The engine house of the Norman Iron Company was built.

The annual meeting of the Minnesota Iron Company was held at Duluth, June 11th. The majority of directors and many stockholders spent some days visiting the mines of the Vermilion and Mesabi ranges before the meeting.

Malta Iron Company.—This company has started shipments from its property, adjoining the Sparta. It was developed by G. A. St. Clair of Duluth, and Pickands, Mather & Company are the operators.

McGregor Iron Company.—This mine, a new property, has its machinery in motion and development will proceed very rapidly. The main shaft is down about 60 ft., and must go 90 ft. more to reach the ore. It will be sunk to about 220 ft. this year. The mine will move some ore this year. Capt. McGregor is manager and one of the owners; the company is an outgrowth of the Dessau Mining Company.

Penobscot Mining Company.—This company has received a 65-ton Bucyrus shovel for stockpile work. The stocks have not been cleaned up since the mine was opened, but it is proposed to make a sweep this year. The new pumping plant will be running in a few weeks.

Sharon Ore Company.—This mine is being made ready for stripping. A contract has been closed with Drake, Stratton & Company for the removal of 400,000 cu. yds. of earth from the ore, and steam shovels will be busy this month. It is intended to send down quite a tonnage this season. J. F. Jones will be manager; Capt. Dick Richards, late of Fayal, superintendent.

Iron—Vermilion Range.

(From Our Special Correspondent.)

A. M. Miller has leased from R. P. Vail and Jon Streamm 160 acres in sections 24 and 25, T. 63, R. 12, for 50 years, and a royalty of 25c. on a total ground rent of $8,000 per year, this to be the minimum amount for royalties annually. Explorations will begin at once with diamond drill.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—There has been a marked improvement in the zinc ore market and some fancy grade ore sold for $30 per ton, an advance of $2 per ton. Matthiessen & Hegeler, of La Salle, Ill., are buying ore again, and the Lanyon Zinc Company, the closest buyers in the market, raised the price of ore $2. Lead sold all the week at $21 per 1,000 lbs., a drop of $1.50 from last week.

During the corresponding week last year top grade zinc ore sold at $47 per ton and lead at $26 per 1,000 lbs. The output of lead was less than last week by 175,780 lbs., the zinc sales greater by 1,286,140 lbs. and the value greater by $86,039. For the first 23 weeks last year the lead sales were less by 5,305,280 lbs., the zinc sales greater by 1,192,610 lbs. and the value greater by $1,131,371. As compared with last week the sales were less by 94,830 lbs. of lead and 1,511,380 lbs. of zinc and the value less by $16,707. Following is the output by camps of the Joplin district for the week ending June 9th:

	Zinc, lbs.	Lead, lbs.	Value.
Joplin	2,738,800	449,290	$45,411
Galena	1,394,060	188,550	22,680
Carterville	1,635,210	247,000	26,144
Webb City	420,270	61,220	6,747
Oronogo	365,250	4,390	4,760
Aurora	1,080,210	21,640	11,257
Belleville	539,440	6,090	7,311
South Jackson	245,550	8,840	3,378
Central City	177,340	11,050	2,537
Duenweg	377,750	69,270	5,359
Cave Springs	119,270	4,960	1,654
Carthage	307,070	.....	2,020
Stotts City	276,800	79,080	5,646
Carl Junction	214,620	.....	3,005
Granby	289,110	13,030	3,300
Wentworth	132,100	.....	1,982
Neck City	54,450	.....	762
Dade County	53,440	.....	374
District total	9,328,930	1,165,510	$154,927
Total 23 weeks	225,034,060	26,108,740	$4,015,803

New Mining Companies.—Among the new companies incorporated are the Castle Rock Mining Company of Joplin, capital stock, $210,000, incorporators, D. F. Sawyer, W. I. & E. M. Rush; The Anita Mining Company, capital stock, $20,000, incorporators, J. A. & J. K. Stewart and John B. Carrington of Louisville, Ky., Robert Toutz, James McLellan and Charles F. Trumbo, all of Webb City, Mo.; The Olney Mining, Milling and Development Company of Harrison, Ark., capital stock, $200,000, incorporators, Amos Greer, R. Woodbridge, M. C. Garvin and Charles H. Lombard, all of Harrison, Ark.

Mining Land Sales.—The sale of 200 acres of mineral land near Galena to Judge N. F. Handy of Topeka, Kan., who represents a syndicate of Topeka capitalists, is closed. The consideration was $10,000. Senator U. Hendrickson of Oronogo has sold 40 acres of his land on Center Creek in the Oronogo bottoms to Pennsylvania parties for $40,000. The Gobbler lease at Wentworth, belonging to H. Gross, is said to be under option to eastern parties for $300,000. The tract comprises 160 acres, and is one of the greatest producers of high-grade ore in the district, the weekly output being about 150 tons. C. F. Stephens of Carthage has sold his 50-acre farm 4 miles west of Carthage to Ed. Magruder of Webb City for $4,000. The land will be prospected. W. B. Shepherd of New York has purchased the 2-acre lease known as the Prigmore on the land of the Old Colony Zinc and Smelting Company at Neck City. W. S. Pierce and R. J. Wessell of Monett, Mo., have purchased the Boyer 40-acre tract at Wentworth for $10,000. John L. Naulty has also a 40-acre tract at Wentworth for $50,000. Wentworth is rapidly coming to the front as a mining camp.

The Zinc-Lead Company of America has secured options on over $3,000,000 worth of property and will consolidate under one management. I. N. Smith, of Springfield, Mo., has sold his ¼ interest in the Marguerite Mill and Mine at Carterville to H. S. Crank, of Springfield, for $6,000. The Bob Moore Mine and 12 acre lease on College Hill, Joplin, has been sold by John D. Cameron to a company composed of H. N. Stringer and J. D. Cameron, Joplin, and F. S. Bassett, Woburn, Mass., and D. C. Roberts, of Chicago, for $10,000. The Wasatch 8-acre lease and mine on North Heights, Joplin, and 80 acres of land in Newton County have been sold to a Cleveland company by D. E. McDowell for $40,000.

The Joplin Lead and Zinc Union, a company with a capital of $500,000, has purchased of John D. Cameron 80 acres in Section 7, Jasper County, with several producing shafts and 2 mills, and also a 40-acre fee and an 80-acre lease at Wentworth for $56,000.

St. Francois County.

(From Our Special Correspondent.)

Vigorous efforts are being made to find the extension of the limited area now known as the disseminated belt, and drilling is going on at Hazel Run and French Village, in the adjoining St. Genevieve County, and at Bismarck and Irondale, in Washington County. In fact a shaft is being sunk at Irondale as the result of drillings that are said to be satisfactory.

The very high price of carbons makes drilling so expensive that the larger companies are laying off some of their drills, while the younger companies are either postponing drilling, or only keeping a single drill in operation.

A chilled-shot drill is being tried, which dispenses with diamonds by substituting chilled cast-iron shot that is worth but 5c. per pound. The results given are very encouraging, and a boom in exploration is likely to result if the results can be verified. Churn drilling is also being substituted for diamond drilling since carbons have advanced to over $50 a carat.

Central Lead Company.—This company has just declared an extra dividend, besides paying its regular monthly dividend. It recently opened up some very rich ground in the old north end of the mine, which for years had been abandoned from the supposed poorness of the ground.

Columbia Lead Company.—This company has paid its second dividend of 1% monthly. It is extracting some very rich ore from Highly shaft and is sinking another shaft on the Pim property.

Elizabeth Lead Company.—This company is pushing exploration with 3 diamond drills, and is building a switch to the property from the Bonne Terre railroad.

Federal Lead Company.—This is the latest organization to invest in the disseminated lead belt, in which the Guggenheim Brothers of smelting fame are said to be represented. They have purchased the Shannon tract, immediately north of the Central Mine, at a price said to net $2,500 an acre, or $415,000 for the tract. They have also purchased the smelting works of the Missouri Smelting Company in St. Louis, and are said to be reaching out for additional mining lands, which are daily becoming scarcer, from the small size of the area known to carry the very profitable disseminated deposits.

Penicant Lead Company.—This company is another new company that has recently purchased some valuable land adjoining the St. Joe Lead Company, at Bonne Terre. It is composed entirely of St. Louis men and starts out with a capital of $100,000. Wm. E. Guy is the president, formerly president of the Madison Coal Company, with Arthur Thacher, vice-president, and H. A. Wheeler, manager.

Standard Lead Company.—This company is another new St. Louis company that has acquired the Joke Day lands on Big River, and has begun prospecting the property with diamond drills.

St. Joe Lead Company.—This company is rapidly sinking its new or No. 11 shaft, to which it has nearly completed a railroad spur about 4 miles long, from whence a Bleichert wire-rope tramway, about 8,000 ft. long, will continue across Big River to the shaft.

MONTANA.

Fergus County.

Great Northern Mining and Development Company.—The cyanide mill has a total length of 300 ft. and is lighted by 100 lights. There is an ore dryer 28 ft. long. The ore from the mine is dumped into a large ore bin whence it is carried by a conveyor to the crusher. After the ore passes through the crusher it is carried by an elevator to a dryer and then lifted to a large screen in the top of the mill, and what does not go through the screen goes into a set of rollers, is crushed and lifted again. On the second floor there are 6 70-ton tanks each 28 ft. in diameter and 3 ft. deep. Two of these are emptied and filled each day, making an average sum of 140 tons daily. A 2-ton car is run out over the tanks, dumped, and run back, being carried on an endless rope. One man fills a 70-ton tank in less than an hour. There are 2 solution tanks 12 ft. in diameter and 5 ft. deep; 2 settling tanks 14 by 4 ft. and one dump tank 15 by 5 ft. There is an automatic regulator to the circulating pump that, if the solution gets too low, will raise steam and if too high lower it. E. W. King is general manager of this plant at Gilt Edge.

Jefferson County.

(From Our Special Correspondent.)

Copper Belt.—This property, 7 miles from Basin on Cataract Creek, belonging to the defunct 1st National Bank of Helena, will start up under a bond and lease to Chicago parties. When worked by the old company 100 cars of ore were shipped which netted above $1,000 per car. The ore averaged 15% copper, with a high silver value. The old company got in financial difficulties and the property came into the bank's hands.

Evening Star.—J. O. Brisco has brought suit to quiet title to this property, which joins the Copper Bell.

Gold Flake.—At this property, 8 miles from Clancy on Quartz Creek, a contract for 100 ft. more has been let. The mine is operated by J. B. Humphrey and others of East Helena, the ore is a milling gold ore.

G. & B.—R. A. Bell, the chief owner, has given a contract for retimbering the present shaft, which is 250 ft. deep, to sink it 150 ft. and run 300 ft. of drifts at the bottom.

Minah.—J. O. Brisco, who has operated this property since the courts awarded it to him, now assumes the ownership of the mill built by Hersey & Bean, of Stillwater, to treat its ores. He intends to treat the tailings and also the top ore, which is partly oxidized, by cyanide.

New State.—A recent strike of silver ore in the old tunnel has increased the activity at this mine. John Wahl, of Clancy, is the owner.

Lewis & Clarke County.

(From Our Special Correspondent.)

Empire.—This old property, now owned by Owen Byons and partner, is to have a cyanide plant to treat the large accumulations of tailings from the stamp mill. These tailings do not take kindly to cyanide without a preliminary treatment, which it has taken months to determine.

Penobscot Mining Company.—The Longmaids, of Marysville, are working the Belmont and cyaniding the ores successfully, it is said.

Piegan.—It is the intention of the Marion Mining Company, owning this Marysville property, to develop it extensively. John Larson, of Marysville, is at the head of the company.

Prize.—Mr. Edwards, of Chicago, has secured this property at Granite Butte and will cyanide the accumulation of tailings from the 10-stamp mill.

Madison County.

(From Our Special Correspondent.)

Lake Shore.—At this mine, in the Tobacco Root Range, on Wisconsin Creek, the No. 1 or lower tunnel is in about 250 ft., and the ledge is said to show ore 3 to 20 ft. thick. The upper tunnels, 3 in number, are also being pushed. Surveys have been made for the location of the mining plant and air compressors, which are now being built at the works of the Edward P. Allis Company of Milwaukee, Wis. The property is situated at nearly the highest point in the Tobacco Root Range, about 17 miles from Twin Bridges, at an elevation of 8,000 ft. The Lake Shore Mine is owned by New York and Cleveland men, among them E. L. Shafner of Cleveland; president, W. L. Kendall of Cleveland; secretary, Charles B. Colt, Cleveland; A. W. Evans, Zanesville, O.; W. H. McCabe and A. L. Taylor and others of New York City; also Chas. C. Hills, Cleveland, O.

Red Bluff.—This property has been in operation for some months under the charge of G. D. B. Turner, representing Montreal men. Large bodies of low-grade concentrating ore are opened. A 100-ton mill is to be erected close to the hoisting works at once.

Strawberry Group.—This property at Pony is operated by John F. Cowan and Company of Salt Lake, who have a bond on the group and are placing thereon a 10-stamp mill taken from the Columbia Mine at Pipestone.

Water Lode.—This property at Red Bluffs, owned by Henry Elling, has been bonded by Charles Sherman, acting for Milwaukee parties, who announce that it will be opened in a thorough manner.

Watseca.—This property at Rochester, recently purchased by A. W. McCune of Salt Lake, has the 50-ton mill about completed. A strike of high-grade ore made on the 400-ft. level shows the ore body to be continuous for that depth without a loss of value.

Silver Bow County.

Anaconda.—Manager Frank Klepetko, and F. J. Cairns, who succeeded T. K. Wilkinson as superintendent of the refinery, are hurrying improvement at the reduction works. At the upper works 4 of the McDougal roasting furnaces are working. The Gates crusher is a success. Its capacity is 800 tons every 24 hours, 55% greater than the stamp which was taken out to put it in. The McDougal furnaces have been built in the Bruckner building. They are 18 ft. in height and 15 ft. in diameter, with a capacity of 200 tons of concentrates per day. The rumors regarding a new smelter are verified. The question as to whether it is a smelter for the Washoe Company or a new smelter for the Anaconda Company has not been settled. Many draftsmen and mechanical engineers have been occupied a long time in the offices of the company on the plans.

Colusa Parrot Mining Company vs. Anaconda Mining Company.—The bill for costs filed by the Anaconda as a result of the recent trial amounts to $273,350, not including attorney's fees. The largest item was for development work conducted under the direction of the court in preparing for the case. This amounted to $189,020 . The most expensive of this was for driving 10,021 ft. of drift and crosscuts which cost $160,336. There was also a bill of $20,042 for keeping the same in repair for 2 years. It cost $35,324 to prepare the maps and models used. The bill for witness' fees amounted to $16,354; the assaying account was $4,789; laboratory account, $1,582. The bill for stenography amounted to $3,156.

Montana Ore Purchasing Company.—At the Rarus Mine a 50-drill Rand duplex compound condensing air compressor is being installed which has some new features. The steam end and air end are reversed and the fly wheel is grooved, permitting the operation of the compressor by either electricity or steam.

The company's concentrator is now operated by electricity from the Big Hole dam of the Montana Power Company. This power is giving better satisfaction and is found more economical than steam. The cranes and 2 tramways are also being operated by electricity. The foundation for a new 700-H. P. blowing engine, used for blowing air into the converters, is being laid. The company is stated to be producing copper at the rate of 3,000,000 lbs. per month.

Smokehouse.—A steam pump was replaced by the electric pump, which proved a failure. The steam pump is now operated by compressed air, furnished by a new compressor recently installed driven by a 15-H. P. electric motor, but as its capacity is not large enough to work the pumps and Rand drills at the same time, the old style of hand drilling has been resorted to. Cross-cutting continues at the 200, both north and southward. The material found shows strong copper indications and considerable zinc, with pyrites. Alexander Tarbet will sink the shaft to the 600. The pitch of the south vein is considerably farther to the south than was expected. A large hoist and dynamo will soon be put in, also a new electric pump.

NEVADA.

Lincoln County.

(From Our Special Correspondent.)

Homestake.—This 20-stamp mine and mill on the west side of the Colorado River started work May 25th. A pumping plant located on the river supplies the mine and mill, which are located one mile from the water.

Directly across the river the Sheeptrail Mine and mill of 20 stamps are steadily busy. Both properties are under the management of Thomas Ewing.

Storey County—Comstock Lode.

Crown Point Mining Company.—At the annual meeting last week 80,853 shares of the 100,000 shares of capital stock were represented, and the following directors were elected for the ensuing year: C. L. McCoy, Thomas Anderson, A. F. Coffin, J. P. Martin and James Newlands, Jr. The following officers were elected: C. L. McCoy, president; Thomas Anderson, vice-president; James Newlands, secretary, and W. E. Sharon, superintendent.

Segregated Belcher & Mides Consolidated Mining Company.—At the annual meeting last week the old board of directors was unanimously reelected for the ensuing year, with Thomas Anderson, president; E. B. Holmes, secretary, and W. E. Sharon, superintendent.

NEW MEXICO.

Socorro County.

(From Our Special Correspondent.)

Graphic.—The mine and smelter near Magdalena have been worked several years by Capt. A. B. Fitch, lessee, with Max B. Fitch superintendent of smelter and Geo. A. Byron superintendent of mine. The smelter and mine are 1½ miles apart, connected by an ore-car tramway line having a descent from mine to smelter of 500 ft. Stopes show a very regular wall formation in most places, and the mine is timbered with stulls. The mine produces from 75 to 100 tons of material per day. Near the main tunnel entrance are lime quarries, from which such lime for the smelter is cheaply obtained. The smelter is equipped with a 42 by 120-in. lead furnace, with a capacity of 100 tons per day. About 10 cars of bullion per month are produced, as well as a small amount of copper matte. Steel water jackets are used, supplied with water from a 3-in. pipe line. The hot water from the jackets is used over again. The water is pumped from a well near by. The loaded cars, holding 2½ to 3 tons each, go down to the smelter by gravity, the speed being regulated by hand brakes, while the empty cars are drawn up by horse power. The mine is opened by 6 levels about 100 ft. apart vertically. There seems to be 1 vein in the upper levels and 2 parallel veins from the third to the sixth. The veins have a 45° dip and are from 5 to 50 ft. wide, standing within a limestone belt, bounded by shale on one side and a quartzite on the other. The ores comprise iron pyrites, red and brown hematites, magnetite and lead carbonates and sulphides, with important silver values in the lead; there are also small copper values. On the 6th level is a body of zinc sulphide, none of which is mined at present. A high-grade tonnage of "sand carbonates," consisting of lead crystals of sand fineness, is shipped. The iron ores, which occur in large bodies, are shipped as a fluxing material.

NEW JERSEY.

Bergen County.

Arlington Copper Company.—Mayor George Bayliss, of North Arlington, and Anthony Schuyler, of Arlington, have executed a deed conveying the Schuyler copper mine property north of Arlington to this company. The officers are: President, William McKensie, of Passaic; treasurer, Horace G. Bell, of Rutherford; secretary, W. C. Eakin, of New York; counsel, Addison Ely, of Rutherford; manager, Charles Dignowity, of Boston; consulting engineer and metallurgist, Dr. W. S. Keith, of San Francisco; directors, William McKensie, Henry G. Bell, William C. Ely, William C. Eakin, William Kent, Charles L. Dignowity and John Scott. The new company has executed a mortgage filed at Hackensack to secure $400,000 in gold mortgage bonds, running for a period of 20 years and redeemable at 110, with current interest, at the option of the directors of the company. This mortgage was given to the Hobart Trust Company of Passaic, which will act as trustee and registrar. Work is to begin on the foundation of a mill, to be completed, it is said, by September 1st. It will be 500 ft. long and 200 ft. wide and will consist of crushing, roasting, leaching and precipitating works. The estimated cost is $200,000.

OHIO.

Athens County.

An explosion of gas in Mine No. 2 of the W. P. Read Company at Glouster on June 8th resulted in the death of Evan Joseph, the fire boss, and 3 miners. The explosion occurred before the miners went to work, which accounts for the small los of life. The mine caught fire and filled up with gas, and the air-shaft and main shaft have been closed. The cause of the explosion is unknown. The mine was abandoned years ago and was recently put in operation again. About 400 men are thrown out of work.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Black Hills Porcelain Clay and Marble Company.—B. R. Noble, president of this new company, has beeen in Custer, from Yale, Mich. The company now controls 1,400 acres of ground.

Crown Hill Company.—The 50-ton concentrating plant is making a trial run, treating 25 tons daily, taken from the 100-ft. level of the Spokane Mine. The vein carries lead and silver, and the ore concentrates to about $60 per ton. S. Barker of Deadwood erected the plant.

Iron Mountain Mining Company.—This company is furnishing 100 tons of iron ore on board cars at Keystone for the Omaha Smelter, where it is used for a flux.

Lizzie.—It is expected that this mine, owned by the Willow Creek Mining Company of La-Mars, Ia., will be opened again. Cross-cutting will be continued.

May.—At a depth of 60 ft. on the quartz ledge in this mine rich ore was encountered similar to that found at the surface. The shaft is being sunk by business men of Custer.

Old Charlie.—Colorado parties are reported negotiating for this mine, near Four Mile, west of Custer. A shaft has been sunk 100 ft.

Strausburg.—Rosenbaum & Weatherby of Custer have begun taking out ore.

Lawrence County.

(From Our Special Correspondent.)

New Smelter.—W. J. McConnel of Idaho has organized a company in Deadwood to erect a pyritic smelter at Crook City, on Whitewood Creek, 10 miles below Deadwood, where plenty of water and dumping room can be had. T. W. Thompson and E. P. Fowler of Whitewood are heavily interested.

Detroit & Deadwood.—The Burlington Railway Company has put in a spur from the Spearfish line to the Detroit & Deadwood Company's ground on Annie Creek, west of Deadwood. Nearly all of the machinery is on the ground for the 100-ton cyanide plant.

Gold Hill Mining Company.—The shaft is down 150 ft. Omaha, Nebraska, parties furnish the capital.

Pelham Mining and Development Company.—This company has been organized at Ottumwa, Ia., with $125,000 capital stock. The officers are: President, W. S. Christie; vice-president, W. S. Pelham; secretary, J. C. Bonham; treasurer, J. W. Harlan. This company proposes to develop a group of claims 15 miles west of Rapid City.

TEXAS.

Navarro County.

Corsicana Oil Field.—The monthly report of operations in the field for the month ending May 31st is as follows, according to the Corsicana "Sun": Wells completed, 36; wells producing, 21; gas wells, 4; dry holes, 11; drilling, 9; rigs, 5; wells abandoned, 12. This, taken together with all former operations, shows for the field as follows: Total producing wells, 473; total gas wells, 17; total dry holes, 157; total abandoned wells, 145. During the month the field has widened eastward by strikes made by Johnson & Baker in the Powell neighborhood.

Production for May was in excess of that for April.

WYOMING.

Carbon County.

Continental Copper Mining Company.—This is a Colorado concern which is doing some work on claims it controls in the Battle Lake District. J. T. Brown is superintendent.

FOREIGN MINING NEWS.

AUSTRALASIA.

New South Wales.

Broken Hill Proprietary Company.—This company reports that for the 4 weeks ending May 23d the refinery turned out 2,485 tons lead, 57 tons hard (antimonial) lead, and 322,691 oz. silver.

New Zealand.

The Mines Department reports the gold and

silver exports from New Zealand as below for March and the three months ending March 31st:

	—Gold.—		—Silver.—	
	1899.	1900.	1899.	1900.
March	36,843	39,165	30,514	29,224
Three months	92,818	95,579	107,681	98,067

For the quarter the gold shows an increase of 2,761 oz., or 3%; while there was a decrease of 9,614 oz., or 9%, in silver. The gold this year was equal to 88,506 oz. fine, or $1,809,609.

(From Our Special Correspondent.)

Hauraki Goldfield.—During the 4 weeks ending May 10th the output of the Hauraki goldfield was £40,591 ($202,955), a decrease from April, due principally to one large mine, the Crown, not having published its return. The largest producers were: Waihi, with £20,459 ($102,295), from 7,774 tons; Waitekauri, with £6,548 ($32,740), from 2,123 tons; Talisman, with £2,931 ($14,655), from 884 tons; May Queen, with £1,675 ($8,575), from 734 tons; Kauri Freeholds, with £2,395 ($11,975), from 1,978 tons; Hauraki, with £1,269 ($6,345), from 170 tons; Whangamata Corporation, with £1,164 ($5,820), from 853 tons.

Heavy rains have ended the drought, and there is no lack of water power for crushing. The mining outlook continues encouraging. A new reef has been discovered in the Golden Cross section of the Waitekauri Company's property, and better ore has been met with in the Komata section. The Waitekauri Extended Company has also struck a new reef, assaying over £3 per ton. The Alpha Company at Waitekauri has cut a 5-ft. reef, yielding payable ore. Payable ore has been struck at 2 points in the Woodstock Mine, which for some months ceased crushing. At Kuastunu tributers in the Juno Mine have struck a rich patch, 1½ tons of ore having yielded bullion valued at £458 ($2,290).

Queensland.

Mount Morgan Gold Mining Company.—This company reports for April a total of 20,111 tons of ore treated by chlorination, the result being 14,627 oz. gold, an average of 0.73 oz. to the ton.

CANADA.

British Columbia.—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—The output of ore for the 5 months and 7 days ending June 7th amounted to 59,000 tons, divided as follows: Le Roi, 39,000 tons; War Eagle, 10,600; Center Star, 7,000; Iron Wash, 1,500; occasional shippers, 900.

British Columbia—Yale District.

(From Our Special Correspondent.)

Kimberly.—According to E. C. Wood, development of this mine is making rapid progress. Shoots of good pay ore have been cut.

Nova Scotia—Cape Breton.

The annual meeting of the Dominion Coal Company, Limited, was held in Boston, June 7th. The report of President Whitney for the year ended February 28th last showed net proceeds from sales of coal and net income from steamships, railroads, barges, real estate, etc., of $746,926; less renewals and extensions at mines during the year, $89,741; total balance, $657,185; less interest on bonds, dividends, etc., $380,694; surplus of net income, $276,490; less sinking fund for 1899, $86,351; balance, $190,139; charged off, $125,178; balance to general surplus, $64,961.

Ontario—Algoma District.

Near Desbarats, a station on the north shore branch of the Canadian Pacific Railway, just north of St. Joseph's Island, a discovery is reported of a fine iron ore body by James H. Teare. The ledge is said to be 100 ft. wide and to be traceable for upward of 5 miles, and a sample of the ore is reported to show 68% iron. Six or 7 years ago a deposit of high grade iron ore was uncovered near Desbarats and attempts were made to work it as a source of supply to the Hamilton Furnace.

Ontario—Rainy Lake District.

Canadian Mines Development Company.—This company, operating the Foley, has cut a vein that shows a width of 7 ft. and is rich in visible gold. The extent of the shoot is not known.

COAL TRADE REVIEW.

New York. June 15.

Anthracite.

The hard coal trade is almost featureless. The amount of coal going forward is, if anything, slightly in excess of the average for this season of the year. Shipments up the lakes to June 1st, as shown by the tonnage passing the Sault, are in excess of last year. This is largely due to the earlier opening of lake navigation, but the movement is heavier than it seemed likely to be. In Chicago territory business shows an improvement and the outlook for the second half of the year is good. At Boston, New York and Philadelphia the market is very quiet indeed. The real determination of what the year's business is to be will not be made before next month. If, as everything indicates, producers get through July without any open cuts being made fall trade is fairly certain to be very good.

Reports of further consolidations in the coal carrying trade are heard and denied. Everything indicates that Vanderbilt interests are likely to have a dominating influence in controlling the management of the anthracite trade, while Pennsylvania interests will control the seaboard bituminous trade. It is even said that considerable Reading stock is already held by the Vanderbilts and that a controlling interest may be secured.

Prices are as firm as they have been and we continue to quote: Broken, $3@3.20; egg, $3.20@$3.50; stove, $3.45@$3.70; nut, $3.45@$3.70; pea, $2.40@$2.60; buckwheat, $2@$2.20; all for free burning white ash, f. o. b. New York Harbor ports.

Bituminous.

The Atlantic seaboard bituminous trade is rather dull. In the aggregate there is considerable coal going forward, but shippers have trouble in finding a place for it in the various consuming territories and stocks at tidewater are large.

In the George's Creek District the strike is still on. Both strikers and operators are waiting to see who will tire first. Certain circumstances that are reported indicate that the more conservative among the miners realize that they are not benefiting themselves by turning over work to men in competing regions.

Trade in the far East is quiet and there is almost an entire lack of inquiries for coal, consumers seemingly having enough. The regular tonnage is going forward, but even this is smaller than heretofore. Along the Sound things are even quieter and trade is decidedly dull. At New York harbor there is a small trade, but it does not amount to much. All rail trade is fairly steady, but prices are being reduced. Foreign trade shows small inquiries and some fairly steady shipments.

Transportation from mines to tide is fairly good. Car supply is limited by the release of cars standing loaded at tidewater. Vessels are rather scarce at the shipping ports and ocean freights are firm. We quote current rates from Philadelphia as follows: Providence, New Bedford and the Sound, 67@70c.; Boston and Salem, 75@80c.; Portsmouth, 80c.; Bath, 80c.; Wareham and Bangor, 85@90c.; Bath, 80@90c.; Lynn, 90c.; Newburyport, 95c.; Saco, $1@$1.15 and towages; Dover, $1.15@$1.25 and towages; Gardiner, 80c. and towages. Freight rates from Atlantic ports to most ports of western Europe are 16s. ($4) for steamers carrying 3,000 to 5,000 tons. Prices show little change and we continue to quote Clearfield f. o. b. New York, $2.50@$2.75; f. o. b. Philadelphia, $2.15@$2.40; Cumberland f. o. b. Baltimore, $2.40@$2.60.

Birmingham, Ala. June 11.

(From Our Special Correspondent.)

Coal mining continues to boom and not enough coal is mined to meet the demand, though every mine is in full operation. The Empire Coal and Coke Company, of Alabama, has been incorporated by Charles Stillman, who is connected in this district with Rogers, Brown & Company, Henry W. Milner, of the Milner Coal and Railway Company at New Castle, Ala., and James Weatherly, of Birmingham, the capital stock being $700,000, of which $400,000 is to be preferred and the balance common. The company has acquired 14,000 acres of valuable coal lands in Walker County and will develop them. A railroad will have to be built, as the property is off any line. The contract has been let for the construction of 9 miles of railroad on the Oneonta & Attalla Railroad in Blount County, being constructed by the Louisville & Nashville system, and it will reach the property of the Underwood Coal Company, which proposes soon to have mines in operation. Frank Culverhouse, formerly Assistant State Mine Inspector, has accepted the position of superintendent.

Superintendent P. J. Stith, of the Brookside Mines, belonging to the Sloss-Sheffield Steel and Iron Company, reports the largest output for May ever before seen at the 4 openings. Samples of coal from Brookside are being tested at Brookwood for the purpose of getting information as to coking coal.

The majority of the Walker County coal mines are out of the market. There is a little coal exported. Orders of some magnitude have recently been refused.

Preparations are being made to increase the production of coke. Coke is still demanding from $4 to $5 per ton.

Chicago. June 12.

(From Our Special Correspondent.)

Anthracite Coal.—The past week has shown no improvement in hard coal business, transactions being wholly in small lots for immediate delivery. Prices appear quite firm, being $5 for broken and $5.25 for egg, stove and chestnut.

Bituminous Coal continues in heavier supply than demand, the amount of coal contracted for during the past week being less than previous week. Prices are very soft and are as follows: Island, Ind., $2.25; Brazil Block, $2.50; Wilmington, $2.50; DuQuoin, $2.50; Pocahontas, $3.75; Raymond, $3.25; New River, $3.75.

Cleveland, O. June 13.

(From Our Special Correspondent.)

Shippers of coal are realizing now more forcibly than they ever have the inability of the facilities of the south shore ports on Lake Erie to handle the stuff that is now being sent up the lakes. Coal is being shipped to the lakes in larger quantities this year than ever. These two conditions ought to insure a rapid movement of coal to the upper lake ports, and the only thing which prevents it is the lack of adequate dock facilities. Boats have been jammed at the lower lake ports. Some vessels which would be willing to take cargoes have been going up light rather than wait the length of time that the condition of the docks demands. The only change in the carrying rates this week has been the abolition of the differential between Chicago and Milwaukee; both ports now getting a 65c. rate. The rate to Duluth remains 50c., where it was all the season.

Pittsburg. July 14.

(From Our Special Correspondent.)

Coal.—The expected rise in the rivers did not come and the stock of coal is increasing, fully 25,000,000 bus. being loaded and ready for shipment to the Southern markets. All the mines in this district, both river and rail, are in full operation and the output is heavier than in any former year. But little information is given out by the Pittsburg Coal Company, the railroad coal combination, but it is understod that some large export orders are being received and that good prices are being secured. No change in the local rates established on April 1st has been announced and none is likely to be made during the summer months.

Connellsville Coke.—The price of furnace coke is supposed to be $3 this week, but some sales as low as $2.75 a ton are recorded. Foundry coke is held at $3.25 a ton. Of the 20,313 ovens in the region 17,739 were active last week and 2,574 were idle. The production was 171,640 tons, a decrease of 20,196 tons compared with the previous week. The shipments aggregated 9,754 cars, distributed as follows: To Pittsburg and river tipples, 2,762 cars; to points west of Pittsburg, 4,825 cars; to points east of Connellsville, 2,167 cars. This was a decreas of 433 cars compared with the previous week.

San Francisco. June 9.

(From Our Special Correspondent.)

Coal receipts at San Francisco by water in May were light, the total being 95,126 short tons only. For the five months ending May 31st the receipts were as follows:

	1899.	1900.
Eastern—Anthracite and Cumberland	13,186	2,789
Washington	270,761	276,471
Oregon	25,355	17,935
Total, U. S.	309,302	297,195
British Columbia	177,853	225,519
Australia	59,585	42,125
Japan	.....	3,600
Great Britain	31,593	33,632
Total, foreign	269,031	304,876
Total	578,333	602,071

The increase this year was 23,738 tons, or 4.1%; it was mainly in British Columbia coal. The statement does not include receipts from California mines, nor from Wyoming mines by rail.

Shanghai, China. May 16.

(Special Report of Wheelock & Co.)

Coal.—Japan is stagnant. Cardiff is moderately firm, while Sydney Wollongong still continues quiet. Arrivals of all kinds of coal during the fortnight aggregated 11,035 tons. We quote, per ton, as follows: Welsh Cardiff, 20.50 taels; Australian Wollongong, cargo, 13 teals, and other sorts 6.50@7 taels; Chinese lump, 7.50@8.50 taels; dust, 5 taels, and mixed, 5.50@6 taels.

Kerosene Oil.—Weak, with little doing. The only arrival was 88,000 cases Batum oil. Stocks are 654,200 cases Russian and 147,000 cases Sumatra; total, 1,595,840 cases. We quote, per case, as follows: American Devoe's, 2.15½ taels; Russian Batum, Anchor Chop, 1.97½ taels; Star & Crescent, Ram and Horse Chops, 1.95 taels, and bulk, 1.47½ taels; Sumatra, Langkat, loose, 1.47½ taels.

European Coal Markets.

The demand for coal and coke throughout Europe is great, and is especially pressing in France and Belgium. As a matter of interest in view of possible export trade, we give quotations below, reduced to United States money. The prices at seaports are higher, especially in Germany, where the quotation in Frankfort or Bremen would be double that at mine.

Kinds.	England.	France.	Belgium.	Germany.
Best steam	$5.76	$6.76	$7 33	$3.45
Seconds	4.56	6.56	6.17	3.25
Small coal	3.24	3.77	3.67	2.38
Run-of-mine	....	4.26	5.40	1.80
Briquettes	..	6.00	....	..
Furnace coke	6.96	7.72	....	5.00

The English quotations are per long ton of 2,240 lbs.; the others per metric ton. The quotations are usually f. o. b. at mines, and express the av-

erage prices. Special coals may bring more. The quotations are for large orders. Transportation adds largely to prices; thus in Paris ordinary house coal, lump, brings 60 fr. ($11.58) per ton.

SLATE TRADE REVIEW.

New York. June 15.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in car-load lots, is given below:

Size, Inches	Monson or Br'nville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	7.00	3.50	3.00	3.25	3.10	5.10	3.15	..	.....
24 x 12	7.00	3.50	3.00	3.25	3.10	5.25	3.15	3.75	.....
22 x 12	7.00	3.50	3.25	3.50	3 25	5.25	3.15	3.75	.....
22 x 11	7.00	3.75	3.25	3.50	3.25	5.25	3.15	4.00	.....
20 x 12	7.00	3.75	.....	3 50	3.25	5.25	3.15	3.75	.....
20 x 11	7.00	.....	.....	3.75	3.50	5.25	3.15	.....	.....
20 x 10	7.00	4 25	3.50	3.75	3.50	5.35	3.15	4.25	10.50
18 x 12	7.00	3.75	.....	3.50	3.25	5.25	3.15	3.50	.....
18 x 11	7.00	.....	.....	.....	...	...	3.15	3.75	.....
18 x 10	7.00	4.25	3.50	3.75	3.50	5.35	3.15	4.00	10.50
18 x 9	7.00	4.50	3.50	3.75	3.50	5.35	3 15	4.25	10.50
16 x 12	7.00	3.75	..	3.50	3.25	....	2.95	3.50	....
16 x 10	7.00	4.25	3.50	3.75	3.50	5 25	2.95	4.00	10.50
16 x 9	7.00	4.25	.....	3 75	3 50	5.35	2.95	4.25	10.50
16 x 8	7.00	4 50	3.50	3.75	3.50	5.35	2.95	4.25	10.50
14 x 10	7 00	3.75	3.25	3.25	3.25	5 25	2.85	3.75	10.50
14 x 9	7.00	..	.....	.....	.....	....	2.85	3.75	10.50
14 x 8	7.00	3.75	3.25	3.25	3.10	5.10	2.85	4.25	10.50
14 x 7	7.00	3.75	3.25	3.25	3.10	5.10	2.60	4.25	10.50
12 x 10	5.75	....	.	....	.....	...	2.60	3.25	....
12 x 9	5.75	..	.....	....	.....	....	2.60	3.25	.. ....
12 x 8	5.75	3.50	.....	3.00	2.80	4 85	2.60	3.50	9.00
12 x 7	5.25	3.25	.....	3.00	2.80	4.85	2.50	3.50	9 00
12 x 6	5.25	3 25	..	3 00	2.80	4.75	2.50	3.50	8.50

A square of slate is 100 sq ft. as laid on the roof.

Business in May was less than the previous month. The roofing slate shipments from Pennsylvania for the first week in June show a decrease from last month, but the movement in school slate and blackboards is larger.

The shipments from Slatington and Walnutport, Pa., for the five months ending May 31st, are compiled by us as below; comparison being made with the same time last year:

	1899.			1900.		
	Roofing Squares.	School, cases.	Blackboards, crates.	Roofing Squares.	School cases.	Blackboards, crates.
January...	13,006	236	1,289	8,692	2,180	1,640
February..	7,979	1,046	940	6,168	1,601	864
March.....	10,644	1,527	1,057	10,619	621	849
April.....	19,640	1,043	923	18,118	1,342	543
May.....	29,700	885	1,283	22,130	406	485
Totals...	80,969	4 737	5,492	65,727	6,150	4,381

Roofing slate shows a falling off of 15,242 squares, and blackboards 1,111 crates, but school slates show a larger movement by 1,413 cases this year.

Vermont quarrymen are still behind with orders for large-sized roofing slate, and report a fall in export business in sea green slate.

Manufactured stock finds a fair sale at unchanged prices.

IRON MARKET REVIEW.

NEW YORK, June 15, 1900

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending June 16 1899.		June 15, 1900.		From Jan., '99.	From Jan., '00.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
An' racite & Coke.	204	252,225	269	291,425	5,662,811	6,828,873
Charcoal.	16	5,225	23	6,025	118,868	168,066
Totals..	220	257,450	292	297.450	5,781,679	6,996,939

Prices are settling generally, but have not yet reached the point where buyers are ready to come into the market freely. The reduction made by the Alabama furnaces marks, the furnacemen say, the limit, and quotations will be adhered to.

The blast furnace reports for June show an increase in weekly capacity of 2.675 tons, as compared with May. Since June 1st, however, there has been a drop, as the following, just received from Pittsburg, shows: "The production of Bessemer pig iron will be greatly restricted during the hot months, as a number of furnaces have been closed or will close within the coming week. Among them are two Shoenberger furnaces and one Cleveland furnace, of the American Steel and Wire Company; Hannah and Hazelton furnaces of the Republic Iron and Steel Company; Spearman at Youngstown; Sharpsville, at Sharpsville, Pa.; Struthers, at Struthers, O.; Ella, at Middlesex, Pa.; Thomas, at Niles, O.; Nitany, at Bellefonte, and Kittaning, Pa. Most of these furnaces will remain idle until repaired, and it is not believed that any of them will be put in operation until the latter part of August. Scottdale furnace, which has been banked, will be blown in again shortly."

There has been some increase in unsold stocks, but not a very large one.

It is understood that the Tennessee Coal, Iron and Railroad Company will manufacture rails from the basic open-hearth steel made at its Ensley plant.

Birmingham, Ala. June 11.

(From Our Special Correspondent.)

The pig iron market in this district is in an unsettled condition and there are two versions as to the quotations at this time. During the past week it was learned that the prices had taken a drop, something like $2 on the ton had occurred, in other words it was stated that No. 1 Foundry was being offered at $16, which formerly brought $18@$18.50, with No. 2 Foundry at $15.50 and No. 3 at $14.75@$15 per ton. This information came from very reliable sources and it was backed up in certain quarters, but in other channels a denial was given that such a drop had occurred. However, the denial was not pressed and that the drop has occurred is evident. There is not much demand from the domestic sources for the product right now. The export trade is enormous and is requiring all the iron that can be manufactured. Notwithstanding the reduction in prices no efforts are being made hereabouts to reduce production.

Shipments from the Birmingham district continue very large. There is no small amount being shipped for export. More could go in that direction, but the ship room cannot be secured readily. That attention is being given to the export trade is evidenced by the departure of Vice-President James Bowron, of the Tennessee Coal, Iron and Railroad Company, this week, for foreign points. It is stated that he goes to place a large amount of Alabama iron at various points in the Old World.

The local consumption continues large. The rolling mills department of the Southern Car and Foundry Company's plant at Anniston, which has been off some time, starts up again this week, some differences with the employees having been settled. The rolling mills in this immediate district are in full operation and will continue so until July 1st. The scale of the Amalgamated Association has not yet been accepted by the Manufacturers' Association. So far nothing definite is heard about this matter and the men are preparing for a rest after July 1st.

The following are quotations: No. 1 Foundry, $16@$16.50; No. 2 Foundry, $15.50@$16; No. 3 Foundry, $14.75@$15.25; No. 4 Foundry. $14.50@$15; Gray Forge, $14.50; No. 1 Soft, $16@$16.50; No. 2 Soft, $15.50@$16. It must be understood that some furnacemen deny and some affirm these figures.

Buffalo. June 13.

(Special Report of Robers, Brown & Co.)

The past week has shown some increase in the volume of business, all of it interesting as displaying the settled policy of buyers to take on new metal only to the extent required to keep the foundry or mill running. Buyers who customarily order by 1,000-ton lots now send in orders for 100 or 200 tons, to be rushed. Buyers who are accustomed to contract for 5,000 tons and upwards at a time are placing requisitions for 1,000, after scouring the field to find who is the lowest seller. These constant indications of bare yards or reduced stocks point to a rush when once the country has made up its mind that bottom is touched. It would seem as if that bottom was not far off, because the advance in the cost of production is such that a very little lowering of figures would wipe off from the producing list not only all the furnaces which were revived under the influence of the boom, but a majority of those which were active factors before. It is difficult to express in figures an uneven market, but the following is supposed to be a fair representation of asking prices, f. o. b. cars Buffalo: No. 1 Strong Foundry Coke Iron, Lake Superior ore, $20.50@$21.50; No. 2, $20@$21; Southern Soft, No. 1, $21@$22; No. 2, $20.50@$21; Lake Superior Charcoal, $23@$24; Coke Malleable, $21@$22.

Chicago. June 12.

(From Our Special Correspondent.)

Pig Iron.—There is no enlarged demand for pig iron, sales during the week having been for small quantities. The large producers of Southern irons are short on certain grades. Shipments on old contracts are being made as fast as required.

Prices are as follows: Lake Superior Charcoal, $23.50@$24.50; Local Coke Foundry, No. 1, $21.50@$22; No. 2, $21@$21.50; No. 3, $20@$20.50; Local Scotch, No. 1, $21.50@$22; Ohio Strong Softeners, No. 1, $23@$23.50; Southern Silvery, $23@$25; Southern Coke, No. 1, $21.85@$22.35; No. 2, $20.85@$21.35; No. 3, $19.85@$20.35; No. 1 Soft, $21.85@$22.35; No. 2 Soft, $20.85@$21.35.

Cleveland, O. June 13.

(From Our Special Correspondent.)

Iron Ore.—Although powerful influences have been at work during the week to advance the carrying rates on iron ore from the upper lake ports to south shore points, no change has been seen. The reason for this is that the amount of ore being shipped in excess of what is taken care of by the contract tonnage is so slight as to create practically no demand for wild tonnage. The fact seems to be that only Duluth is shipping any ore in excess of what is taken up by the contract tonnage, and the amount is limited. The carrying rates remain at $1 from Duluth, 90c. from Marquette and 70c. from Escanaba. Ore has been coming in such quantities that the lower lake ports are not able to handle it with dispatch, so that some of the boats are having to wait for a dock. The movement away from the docks continues brisk, the furnaces taking about all of the ore that the railroads are able to carry to them.

Pig Iron.—Business in foundry irons has livened up considerably. The sales of small lots have been heavier than they were, although it is nothing of which to boast as yet. A few inquiries have been made as to iron for the third quarter and the second half, but iron men are not expecting much until after July 1st. This week has seen a drop in the price of Bessemer iron from $24 to $20. No. 2 Foundry will be based on a reduction commensurate with that which has been made on Bessemer.

Finished Materials.—The standard mills have been forced to meet the prices being made by smaller ones. Billets have dropped from $35 to $28, and plates have gone to 1.5c. from 1.65c. It is said that some deals have been made at even less than 1.5c. Bars have dropped from 2c. to 1.70c. Even with these reductions the business has not materially increased. The only articles that have held strong are shapes.

Old Iron.—But little business is being done and no change in prices has been made.

Philadelphia. June 14.

(From Our Special Correspondent.)

Pig Iron.—The declining tendency in pig iron is still showing itself, particularly on forge iron, which is quoted close to $16. No. 1 Foundry has sold at $21, some brands more. No. 24, $18.50@$19.50; No. 2 plain, $18@$18.50. The foundrymen as a rule have but little iron on hand.

Billets.—The market is awaiting a drop. There is no actual demand and hardly any inquiry.

Bars.—There is a shading of bar iron prices today down to $1.50 for early delivery. Storekeepers are working off assorted orders faster, but big buyers are doing nothing.

Merchant Steel.—Another general cut in merchant steel quotations has been made quietly.

Pipes and Tubes.—Prices are lower and more business is being done, particularly in oil well supplies. Boiler work is good.

Plates.—All shops hereabouts are busy and the managers say they read of more falling off in business than they meet with in the shop. Tank plates are 1.50@1.60c.

Structural Material.—The reports from producing interests are that work is promised for July and August for quick delivery. The new combination is rapidly getting down to a working basis. Angles are 2.15@2.30c.

Steel Rails.—Our people say they get full rates on all the orders they are booking, which are not large. Railroad people are not satisfied with $35.

Old Rails.—Quotations are $18@$20 and not much business. Old steel rails are worth $17.50@$18.

Scrap.—Scrap is not sought after and some dealers have quite a stock. There is less trouble in selling heavy steel scrap than any other. Iron and steel axles might be had not far from $20; No. 1 yard scrap is offered at $14 and buyers would pay $12.50@$13.

Pittsburg. June 13.

(From Our Special Correspondent.)

There has been practically nothing doing in the iron aid steel markets this week. There were no sales of sufficient importance to establish prices different from those already fixed for iron and steel. The Bessemer Pig Iron Association departed from its usual custom at the recent meeting held to fix the price for Bessemer pig iron for the last half of the year: Instead of quoting the Valley rate the price fixed was $20, Pittsburg. This puts the price in the Valley at $19.10. Despite the cut of almost $5 a ton in Bessemer pig iron there were no sales during the week. The steel market is usually quiet. Although the price of Bessemer billets has been fixed at $28 it is believed that billets could be had at a lower price. There have been no sales and it is not known how much this price would be shaded if business were offered. A further cut has been made in the price of steel bars. At a meeting of the Bar Mill Association in this city the other day the price of 2c. was dropped to 1.75c. Plates have also declined in price during the week. The market for structural material has improved somewhat and the demand is increasing, but it is believed the association will reduce the prices owing to the recent cuts in Bessemer

pig iron and steel billets. The Republic Iron and Steel Company has issued a circular to the trade announcing that all the mills of the company will close for two weeks on July 1st, and intimating that the suspension may be of longer duration. This would indicate that some difficulty is anticipated in adjusting the wage scale for another year. The new scale offered by the Amalgamated Association is believed by some manufacturers to be very reasonable. The tinplate scale, however, is expected to cause trouble and arrangements are now being made to close all the plants of the American Tin-Plate Company on June 30th. Most of the mills in the country will close on that date, as time is needed for necessary repairs.

The preliminary conference on the wage scale for the union sheet mills began this afternoon in Pittsburg. John Jarrett and several manufacturers represented the American Steel Sheet Company and President T. J. Shaffer, of the Amalgamated Association, and a committee represented the workers. None of those present would make any prediction as to the probable result of the conference.

Pig Iron.—There is scarcely any change in foundry and forge iron. No. 2 Foundry is quoted at $19@$19.50 and gray forge at $18.

Steel.—There has been little business. Basic billets are quoted at $30. Steel bars are down to 1.75c. and tank plate is quoted this week as low as 1.45c. The outlook for the structural material market is brighter than any other line of steel.

Sheets.—The sheet trade is dull and the American Steel Sheet Company, it is reported, will probably soon close some of its mills. Prices are weak. No. 27 gauge is quoted at 3.10c. and No. 28 at 3.15c., but these prices, it is believed, would be shaded for a good order. Galvanized sheets are still quoted at 70 and 10% off with 15c. freight allowance.

Ferro-manganese.—There is no change in quotations and for 80% domestic the price remains at $100@$125.

New York. June 15.

The local iron market is weak in spots and still unsettled. In foreign trade we note recent shipments of $25,000 worth of iron pipe, $14,000 worth of bridge material and $20,000 worth of machinery to Japan; $37,000 worth of steel plates, $25,000 worth of manufactured iron and $15,000 worth of plows to Australia, and orders for $60,000 worth of manufactured iron from Argentina.

Pig Iron.—The market is very unsettled and there is a great range of prices. As a result, sales are light and will be until consumers feel that bottom is reached. We quote for tidewater delivery: No. 1X. foundry, $20@$21; No. 2, $19.50@$20; No. 2 plain, $17.50@$18; Southern brands, New York delivery. No. 1 foundry, $21@$21.50; No. 2 foundry, $20@20.50; No. 1 soft, $21@$21.50; No. 2 soft, $20@$20.50.

Bar Iron.—Demand is rather light. Common bars are quoted 1.60@1.65c. for large lots on dock; refined bars, 1.70@1.75c.

Plates.—Local sales agents say they think bottom is reached, at any rate for the present. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 1.65@1.70c.; tank, 3/16-in., 1.75@1.80c.; shell, 1.85c.; flange, 1.95c.; marine, 2.20c.; universals, 1.65@1.75c.

Steel Rails and Rail Fastenings.—The mills keep busy and prices remain unchanged as yet. We quote for standard sections, $35 f. o .b. Eastern mills. Smaller rails are quoted: 12-lb., $40; 16-lb., $40; 20-lb., $40; 30-lb. to 40-lb., $38; 40-lb. to standard, $36, with the usual advance for small orders. We quote angle bars, 2.25c.; fish plates, 2.20c.; spikes, 2.30c.; bolts, 3.20c.

Structural Material.—The market shows little change and prices are still pretty firm. We quote in large lots at tidewater: Beams, 2.40@2.45c.; channels, 2.48@2.45; angles, 2.40c.; tees, 2.40c.

Cartagena, Spain. June 1.

(From Our Special Correspondent.)

Iron and Manganiferous Ores.—Since our last report 10 cargoes of iron ore have been shipped from this port, 8 of which being of dry ore and 2 of manganiferous ore. Of above cargoes, one was for United States, and the remainder for the United Kingdom and Continent. The demand for ore is weaker just at the present moment, owing to the news from the American market. The local position of the market, however, fully maintains its firmness, all the mines are in full swing and the production is fully as great as before. The principal event during the month was the closing of all business premises throughout Spain on May 10th, as a protest against the new tax recently imposed by the Government. Freights continue very firm and tonnage difficult to secure even at high rates.

Quotations are, for iron ore: Ordinary 50% Portman, 7s. 6d.@8s.; special low phosphorous, 7s. 10d.@8s. 6d.; special iron ore, 9s.; specular, 60% ore, 11s. For manganiferous ores we quote: No. 1, 20% Fe and 20% Mn., 15s. 6d.; No. 1 B, 25% Fe and 17 Mn, 12s. 6d.; No. 2, 30% Fe and 15% Mn, 12s.; No. 3, 35% Fe and 12% Mn, 10s. All quotations are f. o. b. shipping ports; any new tax that may be levied to be paid by buyers.

Other Exports.—These include 20,000 kgs. ocher to London; 6,000 kgs. ocher to Liverpool; 10,000 kgs. ochre to Hamburg; a total of 36,000 kgs.

European Iron Markets.

In view of the present demand for export, some quotations in foreign iron markets will be found of interest. We give such quotations below, the figures being reduced to United States currency:

Kind.	England.	France.	Belgium.	Germany
Foundry pig	$16.15	$24.15	$22.20	$21.90
Forge pig	17.10	21.25	18.33	21.40
Bessemer	19.50	.....	.....	22.13
Basic pig	.....	.....	.....	21.40
Merchant bar	49.20	54.00	44.50	47.60
Angles, etc.	51.60	54.00	40 50	52.40
Plates	57.60	58.00	48.25	52.40
Steel rails	36.00	.....	29.00	34.50

These quotations are in large lots, f. o. b. mills, and are generally the average prices. English prices are per long ton of 2,240 lbs.; the others per metric ton of 1,000 kgs.

METAL MARKET.

NEW YORK, June 15.

Gold and Silver.

Gold and Silver Exports and Imports
At all United States ports in April and year.

Metal.	April.		Year.	
	1899.	1900.	1899.	1900.
GOLD.				
Exports	$1,162,484	$1,961,580	$4,595,742	$10,120,878
Imports	2,482,871	3,355,115	17,211,696	9,163,651
Excess	I. $1,320,387	I. $1,393,535	I. $12,615,954	E. $957,227
SILVER.				
Exports	4,082,567	4,112,013	18,840,100	19,118,308
Imports	1,849,231	3,266,283	9,530,969	11,331,859
Excess	E. $2,223,336	E. $845,760	E. $9,309,131	E. $7,786,44

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending June 14th, 1900, and for years from January 1st, 1900, 1899, 1898, 1897.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports.	Imports.	
We'k	$3,529,217	$14,017	$658,665	$38,128	E. $4,135,737
1900..	17,902,013	1,426,062	17,813,609	1,967,860	E. 32,321,710
1899..	7,004,528	7,074,216	12,713,932	1,478,483	E. 11,165,761
1898..	4,453,639	68,952,764	15,525,127	1,755,914	I. 70,729,942
1897..	11,646,491	1,723,844	18,995,462	1,204,938	E. 27,713,171

Exports of gold went chiefly to France; those of silver to London. Imports of gold were from the West Indies; of silver from Mexico and Central America.

The United States Assay Office in New York reports the total receipts of silver at 96,000 oz. for the week. Total since January 1st, 2,322,000 oz.

Average Prices of Silver per oz. Troy.

Month.	1900.		1899.		1898.	
	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.	Lond'n Pence.	N. Y. Cents.
January	27.30	59.30	27.42	59.36	26.29	56.77
February	27.49	59 76	27.44	59.42	25.89	56 07
March	27.59	59.81	27.48	59.64	25.47	54.90
April	27.41	59.59	27.65	60.10	25.95	56.02
May	27.56	59.96	28.15	61.23	26.31	56.98
June	.....	.....	27 77	60 43	27.04	58.61
July	.....	.....	27.71	60 26	27.32	59.06
August	.....	....	27.62	60.00	27 48	59.54
September	.....	.....	27.15	58 89	28.05	60.68
October	.....	.....	26.70	57.98	27.90	60.42
November	.....	.....	27 02	58.67	27.93	60.60
December	....	.....	27.21	58.99	27.45	59.42
Year	.....	.....	27.44	59.58	2.76	58.29

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER.		TIN.		LEAD.		SPELTER	
	1900.	1899.	1900.	1899.	1900.	1899.	1900.	1899.
Jan	15.58	14.26	27.07	22.48	4.68	4.18	4.65	5.34
Feb	15.78	17 02	30.58	24 20	4.675	4.49	4.64	6.28
March	16.29	16.35	32.90	23.82	4.675	4.37	4.60	6.31
April	16.76	17.13	30.90	24.98	4.675	4.31	4.71	6.67
May	16.34	17.20	29.37	25.76	4.181	4.44	4.53	6.88
June	.....	16.89	.....	25.85	.....	4.43	.....	5.98
July	.....	17.10	.....	29.63	.....	4.52	.....	5.82
August	...	17.42	.....	31.53	.....	4.57	.....	5.65
Sept	.....	17.34	.....	32.74	.....	4.58	.....	5.50
October	.....	16.94	.....	31.99	.....	4.575	.....	5.32
Nov	.....	16.49	.....	28.51	.....	4.575	.....	4.64
Dec	.....	15.85	.....	25.88	.....	4.64	.....	4.66
Year	.....	16.67	.....	25.12	.....	4.47	.....	5.75

Commencing with March 17th, the prices given in the table for copper are the averages for electrolytic copper; this is the case for both 1899 and 1900. The average price for Lake copper for the year 1899 was 17.61c. For January, 1900, the average price of Lake copper was 16.33c.; for February, 16.08c.; for March, 16.55c.; for April, 16.94c.; for May, 16 55c.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47⅝	$ .49
Peruvian soles and Chilean pesos	.44	.46
Victoria sovereigns	4.86	4.88
Twenty francs	3.86	3.90
Twenty marks	4.75	4.88
Spanish 25 pesetas	4.78	4.82

Imports and Exports of Metals.

Port.		Week, June 12.		Year 1900.	
		Expts.	Impts.	Expts.	Impts.
*New York.					
Aluminum	long tons	.....	....	72	39
Antimony ore	" "	.....	**38	.....	1,378
" regulus	" "	.....	*'30	.....	590
Chrome ore	" "	.....	**100	.....	1,551
Copper, fine	" "	1,532	701	49,267	10,276
" matte	" "	.....	.....	1,559	40
" ore	" "	.....	.....	.....	640
" ash	" "	.....	*8	.....	72
Ferro-Chrome	" "	.....	.....	.....	10
Ferro-mangan'se	" "	.....	.....	.....	322
Iron ore	" "	.....	5,319	.....	16,193
" pig, bar, rod	" "	81	*'101	4,746	2,411
" pipe	" "	106	.....	7,276	124
" plates, sheets	" "	.....	.....	880	13
Lead	" "	1,675	2,250	37.574	37,331
" ore	" "	.....	.....	.....	7,600
" dross	" "	.....	.....	.....	24
Manganese, ore	" "	.....	.....	.....	5,097
Metals, old, scrap	" "	17	**93	1,740	4,103
Composition	" "	.....	.....	1,015	185
Nails	" "	187	....	11,380	.....
Nickel	" "	14	.....	873	61
" ore, matte	" "	.....	.....	.....	5,172
§Railr'd material	" "	67	**75	562	2,222
Rails, old	" "	45	.. ....	516	518
Spiegeleisen	" "	.....	.....	.....	1,300
Steel bars, plates	" "	419	**313	10,419	9,696
" rails	" "	2,154	.....	22,619	18
" wire	" "	1,116	....	12,122	.....
" not speci'd.	" "	16	**56	3,592	1,531
Tin	" "	.....	50	5	12,211
" dross or ashes	" "	.....	.....	.....	.....
" and black plates	" "	.....	1503	.....	16,655
Zinc	" "	95	.....	417	141
" dross	" "	38	.....	462	50
" ashes, skim	" "	107	.....	646	20
" ore	" "	.....	.....	8,073	.....
†Baltimore.					
Chrome ore	long tons	.....	.....	.....	2,930
Copper, fine	" "	470	271	20,961	2,471
" matte	" "	.....	.....	.....	.....
Ferro-manganese	" "	.....	.....	.....	155
Iron pig, bar etc.	" "	213	2,105	4,179	19,739
" ore	" "	.....	15,203	.....	239,096
" pyrites	" "	.....	.....	.....	18,489
Manganese ore	" "	.....	4,700	.....	93,430
Metals, old & Rails	" "	.....	.....	384	.....
Nails	" "	.....	.....	1,506	.....
Pipe, iron & steel	" "	.....	.....	2,527	.....
Silicon	" "	.....	.....	.....	85
Spiegeleisen	" "	.....	.....	.....	659
Steel, bars, etc.	" "	6,375	3	16,793	1,391
" wire	" "	.....	8	.....	87
" rails	" "	4,439	.....	47,748	.....
Tin	" "	.....	.....	.....	111
" and blackplates	" "	.....	137	.....	1,636
*Philadelphia.					
Antimony	long tons	.....	.....	.....	11
Chrome ore	" "	.....	.....	.....	3,300
Copper, fine	" "	.....	.....	2,172	.....
" ore	" "	.....	.....	.....	18,273
Iron, pig	" "	.....	‖180	.....	735
" ore	" "	.....	‖9,700	....	58,718
" pyrites	" "	.....	....	....	87,455
Manganese ore	" "	.....	.....	....	50,638
Spiegeleisen	" "	....	....	....	3,953
Tin	" "	....	.....	.....	193
" and black plates	" "	....	‖180	.....	1,978
Zinc ore	" "	1,000	.....	2,500	.....

Total United States.§§

Articles.		April, 1900.		Year, 1900.	
		Expts.	Impts.	Expts.	Impts.
Antimony ore	long tons	.....	291	.....	822
	" "	.....	344	.....	1,074
Copper, fine, in all forms	" "	‡12,764	§83,492	59,646	17,648
Iron, pig & bar	" "	11,427	6,950	40,404	29,595
" ore	" "	.....	21,726	120	297,962
Iron & steel plates	" "	2,369	357	9,883	4,360
Iron & steel rails	" "	31,494	181	98,823	469
" " wire	" "	7,993	146	27,729	599
Lead, pigs, bars & old	" "	44	83	324	686
Lead in ore, etc.	" "	7,325	9,169	28,908	29,324
Manganese ore and oxide	" "	.....	23,308	.....	158,726
Nickel "&matte	" "	229	.....	804	.....
Nails, cut	" "	1,238	.....	3,529	.....
" wire	" "	2,367	.....	14,689	.....
Quicksilver	" "	41	.....	185	.....
Steel, billets, rods, etc.	" "	2,737	3,156	23,969	13,708
Tin	" "	73	3,404	127	11,521
" &black plates	" "	42	7,475	82	22,407
Zinc	" "	2,771	75	7,941	433
" ore	" "	1,522	.....	11,930	.....

*New York Metal Exchange returns. †By our Special Correspondent. § Not specified. §§ Monthly returns, Treasury Department. ‡ Report of Mr. John Stanton. ‖ Week June 8th. **Week ending June 5th. Exports include domestic and foreign metals.

Import Duties on Metals.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1¼c. a lb. on lead in ores; 2½c. per lb. on pigs, bars, etc.; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c per lb. Spelter or zinc, 1½c. per lb. on pigs and bars, 2c. on sheets etc Copper, tin and platinum are free of duty.

Financial Notes of the Week.

The conditions of general business continues unchanged, with dulness in the speculative markets. Somewhat unexpectedly, gold exports have been renewed, $3,000,000 going out from New York this week. The gold goes to Paris, and it is understood that the Bank of France allows interest in transit in order to secure the gold.

The silver market has been steady for the greater part of the week, developing strength toward the end from active spot demand.

The statement of the United States Treasury on Wednesday, June 13th, shows balances in excess of outstanding certificates as below, comparison being made with the statement of the corresponding day last week:

	June 6.	June 13.	Changes.
Gold	$70,800,879	$72,185,419	I. $1,384,540
Silver	12,071,803	12,882,706	I. 810,903
Legal tenders	19,752,690	22,215,770	D. 2,463,080
Treas. notes, etc.	732,919	659,820	I. 73,099
Totals	$103,358,291	$107,943,715	I. $4,585,424

Treasury deposits with national banks amounted to $107,244,574, showing a decrease of $2,842,061 for the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending June 9th, gives the following totals, comparisons being made with the corresponding weeks in 1899 and 1898:

	1898.	1899.	1900.
Loans and discount	$610,762,500	$757,407,600	$806,751,600
Deposits	724,210,800	879,831,600	893,745,400
Circulation	14,719,300	13,606 800	22,878,800
Reserve:			
Specie	179,182,300	204,163,700	169,551,100
Legal tender	55,711,500	59,617,300	72,259,500
Total reserve	$234,893,800	$263,781,000	$241,810,600
Legal requirements.	181,052,700	224,457,900	223,436,350
Balance, surplus	$47,841,100	$39,323,100	$18,374,250

Changes for the week, this year, were increases of $6,483,000 in loans and discounts, $5,790,900 in deposits, $419,500 in circulation and $378,900 in legal tenders; decreases of $680,200 in specie, and $1,748,025 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding date last year:

Banks.	1899. Gold.	1899. Silver.	1900. Gold.	1900. Silver.
N. Y. Ass'd	$204,163,700	.....	$169,551,100	.....
England	151,799,210	.....	151,688,725	.....
France	362,510,440	$244,048,650	410,377,015	$229,198,685
Germany	147,885,000	79,185,000	140,820,000	72,545,000
Spain	59,295,000	65,565,000	68,445,000	81,530,000
Aus.-Hun.	150,730,000	52,865,000	188,215,000	47,190,000
Neth'ds	19,170,000	34,010,000	24,365,000	29,930,000
Belgium	15,685,000	7,845,000	14,095,000	7,045,000
Italy	76,630,000	12,300,000	77,275,000	8,155,000
Russia	482,745,000	26,170,000	417,860,000	39,880,000

The returns of the Associated Banks of New York are of date June 9th and the others are of date June 8th, as reported by the Commercial and Financial Chronicle cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to May 31st, 1900, are reported by Messrs. Pixley & Abell's circular as follows:

	1899.	1900.	Changes.
India	£1,825,800	£2,372,160	D. £546,360
China	545,978	140,960	D. 505,018
The Straits	24,907	165,080	I. 140,173
Totals	£2,396,685	£2,678,200	I. £281,515

Arrivals for the week, this year, were £210,000 in bar silver from New York, £22,000 from Australasia and £6,000 from the West Indies; total, £238,000. Shipments were £211,500 in bar silver to Bombay, £10,000 to Singapore, £4,700 to Penang and £2,500 to Shanghai; total, £228,700.

Indian Exchange has remained steady at 16d. per rupee, and large sales of Council bills were made in London, remittances on famine fund account adding to the demand. The Indian Government has stopped buying silver for the present.

Other Metals.

Daily Prices of Metals in New York.

June.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London. Pence.	Copper. Lake, cts. ₽ lb.	Copper. Electrolytic ₽ lb.	Copper. London, £ ₽ ton.	Tin, cts. ₽ lb.	Lead cts. ₽ lb.	Spelter. N. Y. cts. ₽ lb.	Spelter. St. L. cts. ₽ lb.
9	4.87¼	60	27⅝	16	15⅝@15¾	....	30	3.82½@3.87½	4.37½	4.25
11	4.87¼	60	27⅝	16	15⅝	71⅜	30¼	3.82½@3.87½	4.30	4.20
12	4.87¼	60	27⅝	16	15⅝	71¼	30¼	3.82½@3.87½	4.30	4.15
13	4.87¼	60⅛	27½	15⅞@16	15⅝@15¾	71⅜	30⅜	3.70@3.75	4.25	4.12½
14	4.87¼	60¼	27½	15⅞@16	15⅝@15¾	72⅛	30⅜	3.70@3.75	4.25	4.10
15	4.87¼	60¼	27½	15⅞@16	15⅝@15¾	72⅜	30⅜	3.70@3.75	4.25	4.10

London quotations are per long ton (2,240 lbs.) standard copper, which is now the equivalent of the former g. m. b's. The New York quotations for electrolytic copper are for cakes, ingots or wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—Sellers have been more inclined to meet buyers' views, and while this has resulted in a somewhat larger volume of business than we have of late had occasion to report, the market is far from active. We quote Lake copper 15⅞@16c.; electrolytic in cakes, bars or ingots 15⅝@15¾c.; cathodes 15⅜@15½c., and casting copper 15½c.

In London the market for speculative sorts was quiet at the beginning of the week, but improved somewhat toward the end. It closed last week at £71 for spot and £70 10s. for three months, opening on Monday at £71 7s. 6d. for spot and £71 for three months prompt. On Thursday it improved, spot being quoted at £72 2s. 6d. and three months at £71 15s. It closes at £72 7s. 6d. for spot, £72 for three months.

Refined and manufactured sorts are quoted: English tough, £76@£76 10s.; best selected, £77@£77 10s.; strong sheets, £84@£85; India sheets, £82@£83; yellow metal, 6⅞@7d.

Tin.—The market has been quiet, with but little business doing, the demand being restricted to small lots for early shipment. Spot tin, while quite abundant, is closely held and commands a premium, selling above the price at which the metal can be imported. At the close we quote spot at 30⅜c. and later deliveries at 29½@29¾c.

The London market, which last week closed at £136 15s. for spot and £128 15s. for three months, opened on Monday at £137 for spot and 129 for three months prompt. It fluctuated early in the week and on Thursday rose to £138 5s. for spot and £131 10s. for three months prompt. The closing quotations are £138 5s. for spot, and £131 15s. for three months.

The production of Billiton tin for the year ending April 30th is reported as below, in tons of 2,240 lbs.:

1899-1900	4,762	1896-97	5,438	1893-94	4,623
1898-99	5,406	1895-96	5,584	1892-93	4,610
1897-98	5,166	1894-95	4,848	1891-92	6,244

The production last year was the smallest reported since 1894.

Lead.—We have again to report a decline in the price of this article. We now quote New York at 3.70@3.75c., St. Louis at 3.62½@3.67½c. We understand that considerable purchases are being made at these prices, but we are unable to obtain a satisfactory explanation as to the cause of the decline.

The market abroad for Spanish lead is £17 5s., English 2s. 6d. higher.

Spanish Lead Market.—Messrs. Barrington & Holt write from Cartagena, Spain, under date of June 2d, as follows: For the past month the average price of lead has been 89.56 reales per qtl., equivalent to a price of £15 10s. 11d. per ton of 2,240 lbs. f. o. b. Cartagena on an average exchange of 32.22 pesetas to £1. The average price of silver has been 14 reales per ounce. The export of pig lead during the month has been: 1,414,374 kgs. to Marseilles; 809,749 kgs. to Coueron; 498,555 kgs. to London; total, 2,722,678 kgs. There was also a shipment of 1,205 kgs. silver bars to Marseilles."

Spelter.—More business is reported this week, as sellers have reduced their prices somewhat and buyers have taken advantage of this to replenish their depleted stocks. We learn that over 50% of the zinc ore producers have closed down in consequence of the present low and unremunerative prices for ore. We quote New York at 4¼c., St. Louis at 4.10c.

In Europe good ordinaries are selling at £20 7s. 6d., specials at 5s. 9d. higher.

Messrs. Barrington & Holt report the exports of zinc ore from Cartagena, Spain, in May, as follows: 1,250,000 kgs. to Antwerp; 450,000 kgs. to Swansea; 400,000 kgs. to Hamburg; total, 2,100,000 kgs., all blende.

Antimony.—We quote Cookson's 10½c.; Hallett's 9⅝c.; U. S. Star 9½@9⅝c.

Nickel.—The price continues firm at 50@60c. per lb., according to size and terms of order.

Platinum.—Consumption has increased and prices are higher. For ingot platinum in large quantities $18.20 per Troy oz. is quoted in New York.

Chemical ware (crucibles and dishes), best hammered metal from store in large quantities, is worth 70½c. per gram.

Quicksilver.—The New York quotation is unchanged at $51 per flask for large lots; for small orders $52.50@$54 is asked. San Francisco quotations are $51.50 for local deliveries, and $46.50@$47 for export.

The London price continues £9 10s. per flask, with the same figure quoted from second hands.

Minor Metals and Alloys.—Wholesale prices, f. o. b. works, are as below:

Aluminum.	Per lb.		Per lb.
No. 1, 99% ingots	33@37c.	Ferro Titanium (20%)	$1.00
No. 2, 90% ingots	31@34c.	Ferro-tungsten (37%)	35c
Rolled sheets	42c. up	Magnesium	$2.75@$3
Alum.-bronze	20@23c.	Manganese (over 99%)	$1.05
Nickel-alum	33@39c	Mangan'e Cop (20% Mn)	32c.
Bismuth	$1.60	Mangan s Cop (30% Mn)	38c.
Chromium (over 99%)	1.00	Molybdenum (Best)	$1.45
Copper red oxide	60c.	Phosphorus	45@47½c.
Ferro-Molyb'um (50%)	$1.05	Tungsten (Best)	95c.
Ferro-Titanium (10%)	90c.		

Variations in price depend chiefly on the size of the order.

LATE NEWS.

Chief Engineer H. E. Nicholls of the Philadelphia & Reading Railway, retired from the service of the company June 14th, after a period of active duty covering 50 years. Mr. Nicholls has been chief engineer since the year 1884, and under his administration many great improvements have been effected.

A cable dispatch announces the death in Paris of Samuel P. Ely, aged 75 years, who was from 1858 to 1883 heavily interested in mines and railroad ventures in the upper peninsula, Mr. Ely went to Marquette, Mich., as the representative of Boston interests in Marquette County iron mines and railroads and became one of the pioneers of the great Lake Superior iron mining industry. He took a prominent part in organizing the Minnesota Iron Company, which opened the famous mines of the Vermilion Ranges. The town of Ely, Minn., was named after him. At the time of his death he was interested in the Spanish-American Iron Company, which owns mines near Santiago, Cuba.

The State Department in Washington has just made public the following memorandum received from M. Cassini, the Russian Ambassador at Washington:

"Mr. Secretary of State: The question of gold mining on the Russian Pacific coast has called forth numerous inquiries addressed both to the imperial embassy and to the Russian consulates in this country, by citizens of the United States who are desirous of participating in the exploitation of the mineral wealth in Russian territory. Erroneous views have arisen in this connection which it is my duty, in the interest of our two Governments and for the prevention of any misunderstanding, to rectify.

"The Imperial Government granted, under date of April 11th, the exclusive right to exploit the mineral wealth in the Peninsula of Tchoukotsk to Colonel Vonliarliarsky, of the Russian Guards. This gentleman has organized an expedition, under the direction of Mr. Bogdanovitch, a mining engineer, which sailed from Russia April 18th-May 1st, for the Peninsula of Tchoukotsk via the United States.

"According to information which I have received from various quarters, numerous gold seekers propose to come from Alaska in the course of the year to the Russian territory to which the aforesaid Russian expedition is bound, which expedition, as I have already had the honor to inform Your Excellency, is alone authorized to carry on mining operations in the country.

"In apprising you, Mr. Secretary of State, of the measure adopted by the Imperial Government, whereby the exclusive right to exploit the gold-bearing lands and others is conferred upon Colonel Vonliarliarsky, I have the honor to beg you to bring this measure to the notice of the United States authorities that are interested, with a view to the avoidance of regrettable misunderstandings."

By Telegraph.
(From Our Special Correspondent.)

Leadville, Colo., June 13th.—The Leadville Home Mining Company held its annual meeting yesterday, when E. J. McCarty, John Harvey, A. Sherwin, H. C. Mitchell and W. A. Polkinghesen were elected directors.

The annual reports were very encouraging, showing that the mine had paid out $500,000 in the short time of its existence, including two dividends amounting to $1.50 a share on the 50,000 shares of stock. The board of directors today elected John Harvey president; H. C. Mitchell vice-president; E. J. McCarty treasurer; A. S. Harvey secretary; A. V. Bohm manager.

CHEMICALS AND MINERALS.

(For further prices of chemicals, minerals and rare elements, see page 730.)

New York. June 15.

Heavy Chemicals.—Quiet. Bleaching powder prime and domestic chlorate of potash are easier in price. We quote per 100 lbs. as below:

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, 58%.	80@85	95@$1.00	85@90
" 48%.	85@90	$1.00@$1.05	1.02½@1.05
Caustic Soda, high test....	$1.90@$2 00	2.25@2.30	$2.50@2.55
powd., 60%.	.....	3.00@3.25	.....
70@74%.	.....	3.25@3.50	.....
98%.	.....	3 50@4.00	3.75@4.00
Sal Soda.....	70@80.	.....	67½@70
" conc.	1.45@1.75	.....	1.75
Bicarb. Soda..	1.25@1.37½	.....	2.25
" " extra	3.25@3.50	.....	.....
Bleach Pdr., Eng. prime..	.....	.....	1.75@2.00
other br'nds.	.....	.....	1.45@1.60
Chl. l'ot. cryst	.....	9.00@9.25	10.25@10.50
" powd.	.....	9.00@9.25	10.50@10.75

Acids.—Sulphuric is in good request, while other acids show a moderate volume of business. Blue vitriol is easier, owing to a lighter demand.

Quotations as below are for large lots delivered in New York and vicinity, per 100 lbs unless otherwise specified.

Acetic, No.8 in lbs....$1.62½	Nitric, 36° $3.87½
Blue Vitriol. ..4.87½@5.00	Nitric, 38°..... 4.12½
Aqua Fortis, 36° 3 62½	Nitric, 40°..... 4.37
Aqua Fortis, 38° 3 87½	Nitric, 42°..... 4.75d.
Aqua Fortis, 40° 4.12½	Oxalic . . ..5.75@6.00
Aqua Fortis, 42°..... 4.50	Sulphuric, 66°... . 1.20
Muriatic, 18°. 1.20	Sulphuric, 60° . 1.05
Muriatic, 20°. 1.35	" bulk 50° ton 14.00
Muriatic, 22°..... 1.50	

Brimstone.—New York arrivals this week amounted to 1,200 tons. Spot best unmixed seconds sold at $20.75@$21 per ton, and shipments $20.50@$20.75, while best thirds are held at $2 less per ton. The production of brimstone in Sicily in the quarter ending March 31st amounted to 119,038 tons, while the exports were 166,426 tons. Stocks on March 31st were 214,681 tons, showing a falling off of 47,406 tons as compared with December 31st last.

Pyrites.—An importation at this port is noted of 3,390 metric tons Spanish copper pyrites. The Davis Sulphur Ore Company, of Massachusetts, reports another cargo of 3,834 tons this week.

We quote: Mineral City, Va., lump ore, $4.75 per long ton (basis 42%), and fines, $4.20. Charlemont, Mass., lump, $5.50, and fines, $5. Spanish pyrites, 13@15c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46%@51% of sulphur; American, 42% @44%.

Fertilizer Chemicals.—Again quiet, after the large sales of blood and tankage the last two weeks. High-grade Western blood is quoted $1.75 per unit, f. o. b. Chicago, and 9 and 20 tankage at $1.65 and 10. Sulphate of ammonia gas liquor for shipment is quoted $2.85 per 100 lbs., and spot at $2.87½@$2.90 Calcutta bone meal No. 2 holds at $28 per ton, and No. 3 at $25, while domestic steam ground bone is worth $20@$22 as to purity.

The prices for potash salts at New York, Boston and Philadelphia, per 100 lbs., are as follows: Muriate of potash, 80@85%, basis 80%, $1.83; muriate of potash, minimum 95%, basis 80%, $1.86; sulphate of potash, minimum 90%, basis 90%, $2.50½; sulphate of potash, minimum 96%, basis 90%, $8.08½; manure salt, minimum 20% potash, 64@66c.; double manure salt, 48@53½c., basis 40%, $1.06; kainit, 12.4% potash, $9.05@$9.30 per long ton; and sylvinit, 38½@39½c. per unit. For Norfolk prices add 2c. per 100 lbs. to the concentrated salts, except double manure salt, to which add 1c., and for kainit add 30c. per ton, and sylvinit 1c. per unit. For Charleston, Savannah, Wilmington, N. C., and New Orleans, add 1½c. per 100 lbs. to the concentrated salts, except 20% manure salt, to which add 1s.; and to kainit add 30c. per ton, and sylvinit 1c. per unit. These prices are for not less than 500 tons of bulk salts or 50 tons of concentrated salts, and are based upon river shipments from the mines to seaport. For shipments by rail add 5c. per 100 lbs.

Nitrate of Soda.—Very dull. Arrivals at New York this week were the steamer "Capac" with 27,136 bags, and the bark "Ellisland," with 26,562 bags; total, 53,698 bags. Sales on spot and to arrive were made at $1.65 per 100 lbs. Higher prices are anticipated by importers in the near future. On June 3d a cargo of 19,455 bags arrived at San Francisco from Peru, and two more are expected for the local powder works.

Concerning the coast market, Messrs. Jackson Bros. of Valparaiso, Chile, advise us under date of May 5th that the heavy falling off in the European deliveries of nitrate of soda has had an adverse effect on the market here. At the same time the scarcity of tonnage prevents any possibility of combination. Producers have in some few cases given way slightly in their prices, but on the whole are more inclined to maintain their former limits. A sale of 96% for delivery January to June was made at 5s. 4d. steamer terms, being a drop of 1½d. on former transactions. Exports in April were 1,439,000 qtls., making in all 8,076,000 qtls. (362,304 long tons) for the first 4 months of this year, against 8,922,000 qtls. (404,677 long tons) in the same period in 1899. We quote 95% June, 5s.; July-August, 5s. 1 d.; September-November, 5s. 2½d., and 96%, 5s. 2d. for near and 5s. 3½d. for forward delivery, all ordinary terms. The price of 4s. 11d. with all round freight of 33s. 9d. stands in 7s. 1½d. per cwt. ($1.71) net cost and freight without purchasing commission. Sales from April 24th to May 3d, inclusive, amounted to 278,000 qtls. (12,609 long tons).

Phosphates.—The domestic market continues quiet, while abroad the European buyers are making better inquiry, though actual business is still limited. The exports of Tennessee phosphates from Pensacola in May aggregated 13,618 tons, making a total for the five months of 52,952 tons, against 35,336 tons last year, showing an increase of 17,616 tons. There were also exported through Charleston, S. C., in May 4,862 tons Tennessee rock. We note an importation of 720 tons from Connetable Island by the International Phosphate Company.

Charters booked recently include 1,856 tons from Fernandina to Gaddvikep, and a second Baltic port at 23s., July sailing; 1,394 tons from Fernandina to Gothenburg, June sailing, at private terms.

We quote as follows:

Phosphates.	Per Ton F. o. b.	C. i. f. Un'd Kingdom or No Sea Ports.	
		Unit.	Long ton.
*Fla. hard rock (77@80%)	$7.50@8 00	7¾@8¼d	$12.09@12.87
*Fla. land pebble (68@73%)	4.35	7d	9 80
*Fla.Peace River.(58@63%)	3.00@3 50	6½@6⅝d	7.80@7 95
†Tenn. rock 78%, export.	4.00	7½@7¾d	11.15@11.31
†Tenn.....78% domestic.	3 50	.....	.....
†Tenn.....75% "	2.75@3.00	.....	.....
†Tenn.....72% "	2.50@2.65	.....	.....
‡So. Car. rock, crude....	3.00	6½d	7.80
‡So. Car. rock, ground...	5.00	.....	.....
Algerian, rock...(63@70%	.....	7d	9 30
Algerian, rock...(58@63%)	.....	6¾d	8.18
Christmas Isle...(80@85%)	.....	8½d	14.03
.....	.....	.....	.....

*Fernandina. †Mt.Pleasant. ‡Fetteressa.

MINING STOCKS.

Complete quotations will be found on pages 727 and 728 of mining stocks listed and dealt in at:

Boston.	Philadelphia.	Montreal.
Colo. Springs.	Spokane.	London.
Denver.	Salt Lake.	Mexico.
New York.	San Francisco.	Paris.
	Toronto.	

New York. June 15.

Professional trading is the rule, as there is practically no demand from outsiders. Amalgamated Copper weakened on sales to $86⅞, and Anaconda to $40½. British Columbia Copper is lower at $10. Union Copper of North Carolina made sales on curb at $2⅝@$3½. Gold Hill, also of North Carolina, and promoted by the same interests as Union, brought $5 on curb on sales of about 650 shares. Homestake, of South Dakota, which is paying regular 50c. dividends monthly, sold 40 shares at $72¼ recently. American Smelting and Refining common eased off to $35¼, and the preferred to $90. Standard Consolidated, of California, receded to $3.75 from $4. Horn Silver, of Utah, declared a 5c. dividend—the first in 15 months—and sold at $1.20@$1.30. Of the Colorado shares Portland, of Cripple Creek, is up 10c. at $3.10; Isabella is steady at $1.25; Mt. Rosa, 78c.; Work is off 3c. at 29c.; Anaconda, 35c.; Mollie Gibson, 1c. lower at $22c.; Little Chief, 18c.; Pharmacist, 12½@13c.; Alamo, 15½c., and Dunkin, 14c.

Father de Smet, of South Dakota, has levied a 25c. assessment; it sold at 5c., which is the first transaction in a long time. Moulton, of Montana, went at 31c.

Auction sales include 500 shares Rochester Mining and Milling Company at $1.

The Consolidated Stock and Petroleum Exchange held its annual meeting on June 11th, and elected Mortimer H. Wagar, president; C. H. Badeau, 1st vice-president; Edward R. Betts, 2d vice-president; E. R. Grant, treasurer; Valentine Mott, chairman; D. K. Young and George L. Ring, trustees of gratuity fund (5 years); W. J. Alpers, Roderick B. Mather, H. T. W. Waller, W. Jenks Merritt, S. M. Moran, J. P. Wintringham and C. H. Ray, arbitration committe; C. C. Jacobus, Valentine Mott, S. A. Luther, George C. Thomas, R. M. Jarvis, C. E. Thorburn, Ogden D. Budd, C. H. Van Buren, T. De Witt Scoble and A. S. Barnes, directors (2 years); Thomas H. McGrath, director for 1 year.

The New York Stock Exchange has listed $6,700,000 7% non-cumulative preferred and $7,500,000 common stock of the Sloss-Sheffield Steel and Iron Company.

The Pure Oil Company, a New Jersey corporation, has increased its capital stock from $1,000,000 to $10,000,000. This company is the chief domestic rival of the Standard Oil Company, and is in effect a selling agency or consolidation of various independent producers and refiners.

Among them are the American Oil Works, Continental Refining Company, Columbia Oil Company, Seneca Oil Works, Emery Oil Company, Germania Refining Company, Independent Refining Company and E. H. Jennings & Brother. Of the $10,000,000 authorized capital $2,000,000 is in 6% cumulative preferred stock and $8,000,000 in common stock. At present the greater part of the product of the company is sold abroad, especially in Holland and Germany. The company has bulk stations in Hamburg, Amsterdam, Rotterdam and Mannheim. The oil goes through the pipe lines of the United States Pipe Line Company from the wells to the western border of New Jersey. From there is it shipped in tank cars to the yards of the Columbia Oil Company at Constable Hook, N. J., and thence by tank steamer to Europe. The officers of the company are James W. Lee of Pittsburg, president; Michael Murphy of Philadelphia, vice-president; Hugh King, treasurer; W. H. Duncan, secretary. The board of directors consists of James W. Lee, Michael Murphy, Hugh King, Delavan Emory, of Bradford, Pa.; Charles P. Collins, of Bradford; E. H. Jennings of Pittsburg; Peter McDonnell, New York; Victor Phillips of Newcastle, Pa.; Lewis Walsh of Oil City, Pa.; Peter Phabold of Oil City; W. H. Westgate, of Titusville, Pa.

Boston. June 14.

(From Our Special Correspondent.)

The market has been a little livelier and less narrow than for several weeks past. This does not mean a boom nor anything like big trading, for the volume of sales has not been large; but prices have been fair, considering that the tendency has been rather to sell than to buy. In fact, any decided appreciation in quotations would bring out a big lot of stock. The trading, as matters stand now, is chiefly professional.

Calumet & Hecla recovered to $728, while Osceola sold at $60½. Utah was quite active and sold at $26.

Dominion Coal rallied to $40 and was one of the more active stocks.

The blind pool stocks did not get much attention. Most people are getting to be afraid of them; and the perplexing nature of the telegrams from Montana adds to this feeling. The suits pending are so numerous and the issues so involved that it would take a Philadelphia lawyer—or a Butte expert—to say what any given decision of a court really means; the average man is hopelessly at sea. The latest reports look as if politics were to be added or rather to be brought out more prominently. They indicate that the Heinze-Clark party are bidding against Daly for the support of the Butte Miners' Union; and what the end of that will be no man can tell. It looks as if the blind pool stocks were good things to leave alone.

There is quite an undercurrent of talk about the zinc stocks which were sold here so freely last year. There are not many sales of these stocks, but those holders who look ahead a little are beginning to realize that most of these companies were capitalized and floated on a basis of $45 or $50 zinc ore; and they are wondering how dividends are going to hold out with ore at $30, and $25 in sight in the near future.

The United States Oil Company has declared its usual quarterly dividend of 50c. a share, payable July 2d.

Colorado Springs. June 9.

(From Our Special Correspondent.)

The local mining market has presented two distinct phases during the past six days—heavy trading and dropping prices. The reviving of the bitter legal fight between the Wilson Creek Consolidated Mining Company and the Independence Town and Mining Company has had a depressing influence upon the entire list of stocks, for the reason that the issue involved is one that touches every company. In this suit a renewed attempt is being made to break the Government patent to the Hull City placer, the property of the Independence Company, it being alleged that fraud was practiced in securing the same. Secretary of the Interior Hitchcock heard arguments from the attorneys of the Wilson Creek Company on Thursday and Friday of this week and attorneys for the Independence Company will argue in defense on June 11th. The Wilson Creek Company is asking the Secretary of the Interior to instruct the Attorney-General to bring suit to annul the patent to the Hull City placer.

The significance of the case to the stocks of the other mining companies listed on the local market is found in the fact that if the patent of the Hull City placer can be broken there is a likelihood that attempts may be made to break the titles to other patented lands.

Aside from the legal aspect of the case, the shares of the defendant company were weak. They dropped from 66¼, closing to-day weak at 61⅜@61⅞.

The balance of the market was practically featureless. On Monday the Elkton-Raven-Tornado deal was ratified according to the plan outlined in the letter of last week. On Thursday the Elkton directors declared the first quarterly dividend of 3c. a share, amounting to $75,000, payable June 20th or immediately thereafter. Elkton stock, which is the only stock left after the consolidation, advanced during the week, selling at $1.20@$1.23. These shares are lower than the

old Elkton stock because of the increase in the capitalization of the company, a feature contingent upon the deal.

Anaconda strengthened from around 34 to 36 during the week. It is believed that provision has been made to take up the company's debt of $112,000. Ingham declined violently during the week from 22⅝ to 19½, recovering to-day to 21⅛. A well-laid bear raid was responsible for the break. None but local buyers were the sufferers. Acacia weakened, through the unwise action of the directors of that company declaring a 1c. share dividend amounting to $15,000 when the company has a very limited cash reserve and a mine that is being worked by lessees only. Several bull reports about the selling of the Burns claim of the company were punctured this week. New Haven, Virginia M, and Tenderfoot Hill Consolidated have all made arrangements this week to sink shafts on their properties, their respective depths being from 300 to 500 ft. The Isabeila Company will declare its second quarterly dividend of 3c. a share, amounting to $67,500, at the directors' meeting to be held early next week.

The week's sales on the local exchanges amounted to 4,323,000 shares, of a cash value of $741,000; last week they were 3,650,000 shares, cash value $624,000.

Portland Ore. June 8.

(From Our Special Correspondent.)

The organization of the Portland Mining Stock Exchange is a new departure for this locality and is sure to result in benefit to the mining interests of the State and vicinity. The mines of Oregon, Washington, Idaho and British Columbia are attracting much attention in the East, and the people of Portland are determined to take advantage of it. Those having charge of this Exchange are getting in shape and have secured a large room on the ground floor on First Street near Washington, next to the First National Bank, and are fitting it up for business. Portland will become a great mining center. The capital represented by its mercantile interests is now more than $21,000,000. The construction of smelters here has already been broached by eastern capitalists, and it only requires intelligent concentrated effort to secure this.

San Francisco. June 9.

(From Our Special Correspondent.)

The usual sort of a market this week; light business and small fluctuations, with inside trading entirely. The usual bulletins from the Comstock and some electric power talk failed to excite even a languid interest.

Some quotations noted are: Consolidated California & Virginia, $1.50; Ophir, 71c.; Silver Hill, 42c.; Mexican, 21c.; Savage, 15c.

The sales on regular call at the San Francisco Stock Exchange for the year to date compare as follows:

	1899.	1900.
January, shares	121,955	164,400
February	350,860	112,000
March	272,625	252,730
April	209,215	121,500
May	164,580	171,015
Total	1,119,235	821,645

The total sales show a decrease of 297,590 shares, or 26.6%, from last year. May business was better than April, but considerably less than in March.

On the Producers' Oil Exchange business has been fair, with the demand chiefly for stocks of producing companies; prospects were rather neglected. National Oil sold at $6.25; Home Oil, $4.75@$4.80; San Joaquin, $2.90.

The Homestake Oil Company is now paying a dividend of 20c. per share. There are 10,000 shares in the capital.

London. June 1.

(From Our Special Correspondent.)

The South African mining market has brightened up a little this week on the news of Lord Roberts' entry into Johannesburg. The messages so far received as to the conditions of the mines and plant are satisfactory, though the exact amount of damage due to neglect mismanagement or wilful spite cannot be ascertained at present. The movements in quotations have been due entirely to professional operations and the public has come forward as speculators, so that the actual amount of business has been small.

The West Australian section continues to be by far the most prominent part of the mining market. The report of the Ivanhoe for 1899 was a full and complete one and showed the company to be in excellent order, with a brilliant future before it. Now comes the news that the output will be reduced considerably owing to the decreased values of the oxidized ore, and that the directors have summarily dismissed their manager, whom only a month or two ago they praised so highly. The whole affair is shrouded in mystery and the directors will have us believe that they are as much surprised as the public to receive such news. This succession of collapses has caused considerable distrust on the West Australian market.

Very little is heard nowadays on the London market of American or British Columbian companies, but this week some attention has been attracted to the Granite Gold Mines, Limited. This company, on the advice of its engineer, Mr. Ernest R. Woakes, has made arrangements to acquire the adjoining property, the Poorman. The Granite Company had already done some development on the Poorman and the results warranted its entire purchase and the provision of additional plant. The two properties can be worked in conjunction under very favorable circumstances. Mr. Woakes estimates an extraction of $15, partly by amalgamation and partly by cyaniding. The company intends to increase its capital and issue shares from time to time as capital may be required.

One of the undeservedly unfortunate companies owned in London and operating in America is the Twin Lake Placers, Limited, which works gravel deposits in Lake County, Colorado. The company has only twice paid a dividend and has been twice reconstructed. Losses have been caused by unexpectedly dry seasons and consequent scarcity of water, by thefts of gold by employees, by robbery of gold in transit and by temporary poorness of the gravels, and last year a flood was the cause of a debit balance. These accidents at first sight seem more like excuses than reasons for failure. But on the other hand most of the money has come out of the directors' own pockets and not from the public and the managers are experienced and reliable hydraulic miners. The chief shareholders belong to the circle of Mason & Barry, the mine owners in Portugal. It is to be hoped that their persistent belief in Twin Lake Placers will prove eventually to have not been misplaced.

To the vulgar mind the name of the famous Mr. Hooley is still an item of interest. People seem to think that he intends once more to launch out into company promoting on a large scale, and there are continual rumors in the daily press about his intentions in this direction. He is, however, not likely to do so until his bankruptcy business is properly squared up, and even then it is doubtful whether he would care to expose himself to the attacks, both public and private, of the multitude of sharks that robbed him right and left before. The most persistent of all the rumors relates to a concession which he is supposed to have obtained from the Czar to work extensive gold estates in Siberia. But all this is the invention of the fertile brain of some member of the press, and has no foundation in fact.

Tyee Copper Company, Limited.—This company is now appealing for public support and subscriptions to its stock in London. The company has been formed to acquire the Tyee copper claim on Vancouver Island. This is not exactly a new proposition, for the same property was offered to the London public last year under the name of the Chemainus Mining and Smelting Company, Limited, though of course the prospectus of the new company does not say anything on this point. The Chemainus flotation was unsuccessful because the promoters relied on the public to subscribe, and did not get underwriters to guarantee the issue. Their proposition was a thoroughly legitimate one and the prospectus a model of straightforwardness, but all the same the issue failed. It is a remarkable thing, and, perhaps, not generally known that the public response to a prospectus is not usually very great. To insure success the promoters should get the issue underwritten and pay a handsome premium for the underwriters' services. Such underwriters are chiefly stockbrokers with clients' funds at their disposal and many bankers and merchants will perform the same services for a consideration. After the failure of the Chemainus Company the holders of the option, Messrs. Livingston, of London and Vancouver Island, did some more development work and are now offering the property under the name of the Tyee Company, and without the assistance of the house responsible for the Chemainus Company. The present prospectus states that there is a large body of ore averaging 7¾% of copper and $6 per ton of precious metal contents. The output is figured at 100 tons of ore per day, and the profit with copper at £50 per ton is estimated at £40,000 per annum. The capital is £120,000, of which £80,000 in shares goes as purchase price and £20,000 is now being offered for subscription, the remaining £20,000 being held in reserve. The estimates are rather higher than in the Chemainus prospectus, and the terms of business not so liberal. No estimate is given of the amount of ore in sight, so the figures of production, contents and costs can be little more than guesswork. Consequently the success or otherwise of the company is quite problematical.

Paris. June 4.

(From Our Special Correspondent.)

The arrival of Lord Roberts and his army at Johannesburg has confounded some of our confident prophets and created some stir in the mining stock market. It has, however, decreased the desire of holders of Transvaal gold stocks to sell and the dealings in those stocks have not been large. Our Anglophobes are confounded by the news and rather disappointed that the mines were not destroyed. Now they do not know what to say.

The market generally has been rather dull, and a certain weakness is apparent in the metallurgical stock. New business is coming in slowly and a fall in prices is feared; moreover coal, ore and wages are higher, so that work costs more. Even at high prices supplies of coke cannot be had as fast as needed.

There is a steadily growing interest in the electrical companies, not alone in those which supply light, but in those which are organized to furnish power, whether for working tramways or for manufacturing establishments. The companies of the latter class most prominent at present are the Compagnie Generale de Traction, the Societe Thomson-Houston, and the Societe des Forces Motrices du Rhone. The Compagnie Generale d'Electricite also finds much favor.

The Exposition continues somewhat disappointing, both in effect and in the number of visitors.

Azote.

DIVIDENDS.

NAME OF COMPANY.	Latest Dividend. Date	Per share.	Total.	Total to date.
		$	$	$
Acacia, Colo	June 25	.01	15,000	15,000
§Ala. Steel & S'p B., pf	July 2	3.00	.....	.....
§Am. Coal. pf., Md	June 30	2.00	120,000	922,500
†Am Steel&Wire,com.	July 2	1.75	875,000	1,750,000
†Am. Steel & Wire, pf	July 2	1 75	700,000	4,900,000
Calumet & Hecla	June 28	10.00	1,000,000	69,850,000
*Central Lead, Mo	June 15	.50	5,000	172,000
Daly-West, Utah	June 15	.25	37,500	382,500
*Doe Run Lead, Mo.	June 15	.50	2,500	105,000
§Dominion Coal, pf	July 2	4.00	.....	.....
§Empire Steel & I., pf	July 2	3.00	.....	.....
*Golden Cycle, Colo	June 18	.05	10,000	318,500
Gold King, Colo	June 20	.03	30,000	180,000
*Homestake, S. Dak	June 25	.50	105,000	8,773,750
Horn Silver, Utah	June 30	.05	20 00	5,270,000
*International Zinc	July 1	.01	3.524	26,427
§Maryland Coal, pf	June 30	2.00	37,700	584,319
*Modoc, Colo	June 15	.01	5,000	175,000
†National Salt, com	Aug. 1	1.50	.....	.....
†National Steel, pf	June 30	1.75	.....	.....
†Nat'l Tube, com	Aug 15	1.50	.....	.....
†Nat l Tube, pf	July 2	1.75	.....	.....
*N. Y. & Hond. Ros	June 16	.10	15,000	1,252,000
Omega, Colo	June 22	.01½	18,188	18,188
§Osceola, Mich	June 2	3.00	279,000	3,359 500
Penna. Steel, pf	July 16	1.75	26,250	78,750
*Portland, Colo	June 15	.02	60,000	2,947,680
†Republic Iron & S., pf	July 2	1.75	371,997	1,587,989
†Sloss Shef'd S. & I. pf	July 3	1.75	.....	.....
*Smuggler, Colo	June 15	.03	30,000	1,515,000
Southern Boy, Colo	June 10	.02½	25,000	35 000
Specimen, Colo	June 8	.13¾	153,037	153,037
§Tamarack, Mich	June 29	7.00	420,000	6,690,000
United Verde, Ariz.	June 15	.75	225,000	1,837,500

* Monthly. † Quarterly. § Semi-annual.

ANNUAL MEETINGS.

Name of Co.	Locat'n.	Date.	Place of Meeting.
American Boy	Wash	June 25.	Spokane, Wash.
Banker	Colo.	July 2.	Leadville, Colo.
Best & Belcher	Nev.	July 12.	San Francisco, Cal.
Bunker H. & Sull	Idaho	June 17.	San Francisco, Cal.
Centennial	Mich	July 13.	60 State st., Boston.
Dipper	Utah	June 20.	Salt Lake City, Utah
Golden Fleece	Colo	July 20.	Council Bluffs, Iowa.
Homestake	S. Dak.	July 18.	San Francisco, Cal
Iron Prince	Utah	June 16.	Salt Lake City, Utah.
*Mercur	Utah	June 25.	Salt Lake City, Utah
Quicksilver	Cal.	June 20.	20 Nassau St., N. Y.
Union Con.	Nev.	July 12	San Fra cisco, Cal.

*Special meeting.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No	Delinq.	Sale.	Amt.
Allison Ranch-Ford	Cal.	...	June 16	.....	.01
Alta	Nev	...	July 10	.....	.05
Arrastraville	Cal.	5	June 11	July 11	.10
Belcher	Nev.	64	May 29	June 19	.15
Ben Butler	Utah	4	June 14	July 2	.00¼
Bullion	Nev.	56	June 20	July 10	.03
Cadmus	Cal.	...	July 25	.....	.10
Calfornia Borax	Cal.	3	July 5	July 30	2 00
Eureka Con. Drift	Cal.	25	June 30	July 21	.01
Eutonia	Utah	1	July 6	July 17	.00½
Father de Smet	S.D'k	3	July 9	Aug. 6	.25
Garibaldi	Cal.	2	July 9	July 31	.04
Geyser-Marion	Utah	.	June 27	July 30	.03
Goleta Con	Cal.	1	June 15	July 9	.06
Jenny Lind	Cal.	...	June 21	.....	.01
Justice	Nev.	68	May 29	June 20	.05
Lion Con	Utah	3	June 2	June 20	.00½
Marmaduke	S.D'k	...	June 1	July 1	.00½
May Day	Cal.	4	June 6	July 25	.10
Meicher	Utah	2	June 29	July 16	.01
Meteor	Utah	...	July 10	Aug. 14	.00½
Ophir	Nev.	78	June 6	June 26	.20
Pacific	Utah	3	July 10	July 31	.00½
Picnic	Utah	1	June 9	June 30	.01
Ruby Hill	Utah	1	July 10	Aug. 10	.00½
Sailor Con	Cal.	4	June 22	July 16	.01
Seg. Belcher & Mides	Nev.	25	June 20	July 10	.03
Sheba	Cal.	...	June 28	.....	.10
Silver State	Utah	...	July 2	July 20	.00½
Star	Utah	...	June 26	July 16	.01
Tetro	Utah	13	June 30	July 21	.01
Texas	Cal.	...	July 11	.....	.10
Utah Con	Nev.	33	June 7	June 28	.05
Victor	Utah	..	June 6	June 26	.03
Victory	S.D'k	9	June 5	June 23	.00¢

STOCK QUOTATIONS.

NEW YORK.

NAME OF COMPANY	Location.	Par val.	June 8. H.	June 8. L.	June 9. H.	June 9. L.	June 11. H.	June 11. L.	June 12. H.	June 12. L.	June 13. H.	June 13. L.	June 14. H.	June 14. L.	Sales
Alamo	Colo.	1	.14	...	...	...	.14½	...	.14	...	.15½	...	.16	.14	...
Alice, g. s.	Mont.	25	.40	...	...	...	.40	...	.40	...	.40	...	.40	...	...
Amalgamated C	"	100	88.00	87 50	88 00	87.75	87.50	87.00	86 88	86.50	87 13	86 88	87.00	86.75	890
*Anaconda, c.	"	25	40.38	40.00	40.00	...	40 50	40.13	41.00	40 50	41 00	40 50	40.00	...	2,970
Anaconda Gold	Colo.	5	.34	...	...	...	.35	...	.35	...	.35	...	.35	...	1,000
Argentum-Jun.	"	2	.18	...	...	...	.19	...	.19	...	.19	...	...	...	...
Ariz. Lead	Ariz.	25	15.00	...	15.00	...	15.00	...	15.00	...	15.00	...	15.75	14 50	...
Belcher	Nev.	3	.17	...	...	...	.16	...	.18	...	.17	...	.26	...	...
B & Belcher	"	3	.22	...	...	...	.22	...	.24	...	.20	...	.22	...	...
Brit.Col.Copper	B. C.	1	10.75	10.25	10.75	10 25	10 75	10 00	10 50	10.00	10.25	10.00	10.25	9 75	3.0
Brunswick	"	1	.23	...	...	...	.23	...	.25	...	.25	...	...	...	...
Challar	Cal.	1	.18	...	...	...	.18	...	.17	...	.17	...	.17	...	...
Chrysolite	Nev.	3	.04	...	...	...	.04	...	.04	...	.04	...	.04	...	...
Comstock T.	Colo.	50	.08	...	...	...	.02½	...	.02½	...	.03	...	.02½	...	2,500
" bonds	Nev.	100	.02½	...	...	...	.02½	...	.02½	...	.03	...	.02½	...	...
Con. Cal. & Va.	"	2½	1.55	...	...	...	1.35	...	1.50	...	1.35	...	1.4	...	200
Creede & C. C.	Colo.	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Cripple Cr. Con.	"	1	.14	...	.04½	...	...	...	.04	...	.05	...	...	...	1,000
Crown Point.	Nev.	3	.09	...	...	...	.28	...	.28	...	.28	...	.28	...	500
Daly	Utah.	26	1.00	...	...	...	1.10	...	1.10	...	1.10	...	1.10	...	...
Deadw'd Terra.	S.Dak.	25	.55	...	...	...	.50	...	.52	...	.50	...	.50	...	...
Dunkin	Colo.	25	...	...	...	...	...	...	...	...	.14	...	...	...	200
Elkton	"	1	1.25	...	...	...	...	...	...	...	...	...	...	...	200
Father de Smet	Dak.	25	...	...	...	...	...	...	...	...	.05	...	...	...	100
Golden Age	Colo.	1	...	...	.04½	...	...	...	...	...	...	...	...	...	2,000
Golden Fleece	"	1	.28	...	...	...	.28	...	.28	...	.28	...	.28	...	...
Gould & Curry	Nev.	3	.12	...	...	...	.16	...	.10	...	.10	...	...	...	1,000
Homestake	S. Dak	100	70 00	...	...	...	...	...	...	...	...	...	...	...	100
Horn Silver	Utah.	20	1 25	...	1 35	...	1.30	1.20	1 25	...	1 25	...	1.25	...	1,030
Iron Silver	Colo.	20	.60	...	.63	...	...	...	.60	...	.60	...	.60	...	100
Isabella	"	1	1.25	...	...	...	1.25	...	1.25	...	...	...	...	...	400
Lacrosse	"	10	14	...	...	...	.14	...	...	...	14	...	.14	...	...
Leadville	"	10	.06	...	...	...	.06	...	.06	...	.06	...	...	...	...
Little Chief	"	1	...	...	.18	...	.18	...	.17	...	.16	...	.16	...	600
Mexican	Nev.	3	.18	...	...	...	.17	...	.20	...	.18	...	.15	...	...
Mollie Gibson	Colo.	5	...	...	...	...	.23	...	...	...	...	...	...	...	800
Mt. Rosa	"	1	...	...	...	...	...	...	.18	...	...	...	...	...	500
Ontario	Utah	100	7 00	...	...	...	7.00	...	7.00	...	7.00	...	7 00	...	...
Ophir	Nev.	3	.75	...	...	...	.76	...	.65	...	.82	.75	.70	...	900
Pharmacist	Colo	1	...	...	...	...	12½	...	.13	...	...	...	...	...	3,000
Phœnix	Ariz.	1	.07	...	...	...	.07	...	.07	...	.07	...	.07	...	...
Plymouth	Cal.	10	.10	...	...	...	10	...	.10	...	.10	...	.10	...	...
Portland	Colo.	1	2.95	...	...	...	2 90	...	3.10	...	2.90	...	3.00	...	300
Potosi	Nev.	3	.17	...	...	...	.16	...	.17	...	.15	...	.15	...	...
Quicksilver	Cal.	100	1.50	...	...	...	1.50	...	1.50	...	1.50	...	1 70	...	...
do. pref	"	100	7.00	...	...	...	7.50	...	7 50	...	7.00	...	7.75	...	...
Savage	Nev.	2½	.12	...	...	...	.15	...	.15	...	.16	...	.14	...	200
Sierra Nevada	"	3	.27	...	...	...	.24	...	.23	...	.27	...	.25	...	...
Small Hopes	Colo	20	.50	...	...	...	.50	...	.53	...	.51	...	.75	.50	...
Standard Con.	Cal.	10	3.95	...	4 10	...	4.00	...	3 85	...	3.75	...	3 75	...	350
Tenn Copper	Tenn	25	13.00	11.00	13.00	11.00	13 00	11.00	13 00	11 00	13.00	11.00	13 50	12.00	...
Tornado	Colo.	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Union Con.	Nev.	2½	.12	...	...	...	.17	...	.17	...	...	...	.18	...	...
Work	Colo.	1	.32	...	...	...	.32	...	.31	.29	...	...	...	...	700
Yellow Jacket	Nev.	3	.17	...	...	...	.12	...	...	...	.10	...	.15	...	200

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.	.....	$100	38	37	38⅜	38⅛	37	...	36⅜	35⅛	36⅜	35⅛	...	...	4,695
" " " " pf	.....	100	90⅜	90¼	9 3⅝	9 3⅜	90¼	89⅛	90¾	90	90	90	...	...	1 834
Am.S. & W Con	.....	100	34⅛	34⅛	34⅛	33⅜	34	33⅛	34¼	33⅛	34⅛	34⅛	34	...	19,960
" " pf'r n	.....	100	74⅛	74	74	73⅝	75	73⅝	74¾	73⅛	75⅜	74⅜	74¼	...	8,817
Am. Tin Plate	.....	100	21⅜	...	...	...	21¾	21¾	21¾	...	22	...	21⅜	...	330
" " " pf	.....	100	...	...	...	...	73	...	...	...	73	...	...	...	100
Col. Fuel & I.	Colo.	100	34	33½	32⅜	32	32⅜	31⅜	33	32	33⅜	33	32⅜	...	9,335
Col. & H.C.& I.	"	100	...	...	...	...	...	...	14	...	14	...	...	...	275
Federal Steel	.....	100	33¼	33⅛	33⅛	33	33¼	31⅝	33⅛	31⅝	33¼	31⅜	32¼	...	36,585
" " pf	.....	100	66⅜	66⅜	66⅝	66⅜	66⅛	65⅝	66	65¾	66⅜	65⅞	71⅝	...	4,510
Fleming'n C.&C	W.Va.	100	26¾	23	26¾	23	26⅜	23	26⅜	23	26⅜	23	27	23	...
Int'l Pump	.....	100	18	17	18	17	18	17	17⅜	17	18	16⅜	18	16	...
National Lead	.....	100	18⅛	...	...	...	18¼	18⅛	...	...	19⅜	19	...	...	1,060
" " pf	.....	100	95⅜	95	...	...	...	...	96	95¼	96¼	...	95¾	...	330
National Salt	.....	100	42	41	42	41	42	41	42	4	41¾	40	40¾	40	...
" " pf	.....	100	70	67⅜	70	67½	70	67⅜	70	67⅜	70	67⅜	70	67	...
Nat'l Tube	.....	100	44½	44	44¼	44⅜	44	43⅜	43⅜	...	44	...	44	...	627
Press. St. Car	Pa.	100	46¾	45⅜	45¾	...	45⅜	...	45¾	...	...	...	45¾	...	980
" " pf.	"	100	31	29	...	...	...	...	76	...	...	...	...	...	2.0
Republic I. & S.	.....	100	12⅜	...	12⅜	...	12	11	12	09¾	11⅜	11	10⅝	...	5,730
" " pf	.....	100	56¾	...	56¾	...	57	...	57	56	56⅝	...	56	...	1,110
Sloss-Shef.	.....	103	22⅜	20	22⅜	20	22⅜	20	22⅜	20	22⅜	20	...	...	...
" " pf.	.....	100	65	62	65	62	65	62	65	62	65	62	63¾	...	215
Stan.Oil of N.J.	.....	100	550	546	550	546	547	544	547	544	550	544	551	544	35
Tenn.C.,I.&R.R.	.....	100	70¾	69	69	67¾	68¾	67¼	68	66¾	69½	67	67¾	...	28, 50
" " " pf	.....	100	...	...	...	...	...	...	...	...	...	...	...	...	...
U.S.Cast I.P.&F	.....	100	6	5¾	6	5¾	6	5¾	6	5¾	6	5¾	6	5¾	...
" " " pf	.....	100	42	41	42	41	42	41	41¾	40¾	40¾	40½	41½	40¾	...
Va. Coal & C	.....	100	7	6	7	5	7	5	7	5	7	5	...	...	...

*Ex-dividend. Total sales, 141,568.

PHILADELPHIA, PA.*

NAME OF COMPANY.	L'cation.	Par Val.	June 7. H.	June 7. L.	June 8. H.	June 8. L.	June 9. H.	June 9. L.	June 11. H.	June 11. L.	June 12. H.	June 12. L.	June 13. H.	June 13. L.	Sales
Am. Alkali	.....	.....	2 75	...	2.75	...	...	...	...	...	2.75	...	2.75	...	1,255
" " pf.	.....	.....	...	...	...	...	...	...	...	...	...	...	...	...	...
Bethlehem Irn	Pa.	.....	...	...	...	...	57.75	...	...	...	...	...	57.75	57.50	115
Bethlehem St'l.	"	$50	15 63	15 50	15.50	...	15.50	...	15 13	15.00	15 00	14.75	15 00	14.75	3,390
Cambria Iron.	"	50	...	...	43 50	...	44.00	...	43 50	...	43.50	...	...	...	44
Cambria St'l.	"	50	17.75	17 38	17.25	...	17.38	17 00	17.00	16.75	16.75	16.63	16 75	16 50	3,786
Susq. I. & S.	"	10	2 75	2.50	2 50	...	...	...	2.50	2 25	2.80	...	2.50	...	2,295
United Gas I.	"	50	116	...	116	...	115¾	115	115¾	115	115	...	...	...	936

Total shares sold, 11,821. * Reported by Townsend, Whelen & Co., 309 Walnut St., Philadelphia.

SAN FRANCISCO, CAL.

NAME OF COMPANY.	Location.	Par value.	June 7	June 8.	June 9.	June 11	June 12.	June 13
Belcher	Nev.	$3.00	.20	.19	.19	.29	.19	.19
Best & Belcher	"	3.00	.26	.25	.25	.25	.25	.26
Caledonia	"	3.00	1.05	.90	.91	1 00	1.05	1.15
Challenge Con	"	3.00	.14	.14	.13	.18	.13	.13
Chollar	"	3.00	.21	.21	.21	.19	.19	.21
Confidence	"	3.00	.63	.60	.61	.60	.61	.65
Con. California & Virginia	"	2 50	1 45	1.45	1.45	1 45	1 45	1 50
Crown Point	"	3.00	.08	.08	.08	.08	.07	.07
Gould & Curry	"	3.00	.13	.12	.13	.13	.12	.13
Hale & Norcross	"	3.00	.27	.26	.26	.24	.25	.26
Justice	"	2.00	.08	.08	.08	.08	.07	.06
Mexican	"	3.00	.21	.21	.20	.19	.20	.21
Occidental Con	"	3.00	.13	.13	.12	.12	.13	.12
Ophir	"	3.00	.71	.70	.71	.69	.71	.74
Potosi	"	3.00	.20	.20	.21	.18	...	.20
Savage	"	2.50	.15	.19	.18	.17	...	.16
Sierra Nevada	"	3.00	.30	.30	.29	.27	.28	.29
Standard Con	Cal.	10.00	4.60	3.75	4 80	4.30	4.25	4.75
Union Con	Nev.	2.50	.21	.20	.20	.20	.21	.20
Utah Con	"	1.00	.13	.13	.13	.12	.12	.13
Yellow Jacket	"	3.00	.14	.14	.14	.14	.13	.13

CALIFORNIA OIL STOCKS.*

Name of Company.	No. of shares.	Par Val.	May 23. H.	May 23. L.	May 24. H.	May 24. L.	May 25. H.	May 25. L.	May 26. H.	May 26. L.	May 28. H.	May 28. L.	May 29 H.	May 29 L.	Sales
Anaconda	100,000	$5.00	...	...	...	...	...	...	...	...	...	...	...	...	...
Blue Goose	5,000	100	15.50	14.00	15 00	10.00	15.00	10.50	15.00	10.50	15.00	10.00	11.25	10 00	20
Buckhorn	16,000	10.00	4 25	3.40	...	...	3.60	...	3.75	...	...	...	4.00	3.25	...
Caribou	100,000	1 00	.50	.35	.40	.35	.40	.35	.40	.35	.40	.35	.40	.35	625
Dominion	100,000	1.00	...	...	.50	...	.40	...	...	...	...	...	...	...	...
Home	100,000	1.00	4 70	4 60	4 65	4 47	4 65	4 6	4 60	4 55	4 65	4 60	4 65	4 60	1,466
National	100,000	5.00	6 50	6 375	6.375	...	6.50	6 375	6.375	...	6.375	6.25	6.25	...	240
Petroleum	100,000	1 00	.40	.35	.35	...	.35	...	...	.35	...	.35	...	...	20
San Joaquin	100,000	1 00	...	...	...	...	...	...	...	...	...	...	...	...	...
West Lake	200,000	1.00	.80	.70	.80	.65	.85	.70	.78	...	.75	.65	.75	.65	100
Yukon	100,000	2 50	1.00	.90	1.00	.90	1.25	.90	95	.90	1.10	.85	1 10	.85	1,100

* California and Producers Oil Exchanges. Total sales, 3,531 shares.

BOSTON MASS.†

NAME OF COMPANY.	Par val.	No. of shares.	June 7. H.	June 7. L.	June 8. H.	June 8. L.	June 9. H.	June 9. L.	June 11. H.	June 11. L.	June 12. H.	June 12. L.	June 13. H.	June 13. L.	Sales
Adven'r'e,Cons	$25	100,000	...	...	...	...	...	...	...	...	...	...	3 75	...	10
Aetna, Cons. g.	5	100,000	...	...	1.50	...	...	...	...	...	...	...	1.68	1.50	350
Alloues	25	80,000	1.38	...	...	...	...	...	...	...	...	...	1.25	1.18	325
Amal. Cop.	100	750,000	89.00	88.00	88.00	87 50	88 00	87.50	88.25	87.38	88 00	86.75	88 00	86 50	1,335
Am. Z. L. & S.	25	60,000	...	...	...	...	11.00	...	...	...	...	...	11.00	...	149
Anaconda	25	1,200,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Arcadian, c.	25	100,000	20 00	19 25	...	...	...	...	19.50	19.00	19.50	19.00	19.50	18.50	1,005
Arnold, c.	25	60,000	5.13	...	5.13	...	...	...	...	...	...	...	5.25	...	250
Ashbed	25	400,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Atlantic, c.	25	40,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Baltic c.	25	100,000	...	...	...	...	...	...	...	...	...	...	3 75	18.50	300
Bingham, c. g.	10	190,000	...	...	...	...	...	...	...	...	...	...	9.75	...	165
Bonanza, Dev.g	10	300,000	1.00	...	...	...	...	...	...	...	...	...	...	...	50
Boston. g	10	100,000	...	...	...	...	...	...	...	...	...	...	3.18	...	50
Boston & C. C.	2	200,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Bos.&Mon.Tr.R	25	150,000	300	297	300	299	297	295	300	299	298	...	299	...	357
British Col.	5	200,000	10 88	10.63	10.75	...	...	...	...	...	10.75	...	10 88	10.75	725
Butte & Bost., c	10	200,000	...	...	67.00	...	...	...	...	...	65.00	...	...	...	16
Cal. & Hecla. c.	25	100,000	705	...	710	705	707	705	720	710	7.75	720	728	725	153
Centennial. c.	10	300,000	50.00	...	...	...	...	...	...	...	16.50	...	...	...	75
Cent'l-Eureka	25	90,000	23.50	...	...	...	...	...	...	...	23.50	...	...	...	80
Central Oil	25	100,000	...	...	...	...	...	...	...	...	14 00	...	...	...	300
Cochiti, g.	25	60,050	...	...	10.00	...	9.88	...	...	...	10.00	9.50	...	...	505
Cont.Zi.Mg&Sm	10	157,000	...	...	2.50	...	...	...	...	...	...	...	...	...	65
Copper Range	10	110,000	50.00	...	47 00	...	...	...	...	...	...	...	...	...	200
Crescent	10	100,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Dominion Coal	25	100,000	42.50	42.00	41 50	40.50	41.50	41 00	43 50	39 00	39.25	38.63	40.50	39 00	2,365
do. pref.	100	150,000	...	...	118	...	118	...	118	...	...	...	...	...	25
Elm River	100	20,000	25.00	...	...	...	...	...	...	...	4.75	3 75	...	...	125
Federal Steel	12	100,000	...	...	33 50	33 25	33.25	33.00	33 00	31.75	32.38	31.25	33 13	32 25	3,183
do. pref	100	464,843	66.50	...	...	...	...	...	66 00	...	66.10	...	65.75	...	25
Franklin, c.	100	582,610	...	...	...	...	...	...	14 50	...	12.38	...	...	...	75
Gold Coin	5	200,000	...	...	...	...	.10	...	...	...	...	...	...	...	400
I. Royal Con. c.	25	100,000	25.00	...	24.75	24 00	...	...	...	...	23 50	23 00	23 50	23 00	780
Mass Con	25	100,000	...	...	...	...	...	...	...	...	7 00	...	7.00	...	285
Mayflower	25	100,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Merced, g	15	100,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Michigan	25	100,000	4.50	...	...	...	...	...	4.50	...	4.75	...	...	...	100
Mohawk, c.	25	100,000	...	...	14.00	13.50	13.50	...	...	...	13.50	...	...	...	390
Montana C & C	5	100,000	...	...	8.00	...	...	...	8 00	...	...	...	8.25	8.00	130
N. A. Gold Dreg.	10	100,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Old Colony	25	100,000	...	...	...	...	3 00	...	...	...	...	...	...	...	25
Old Dominion,c	25	150,000	...	...	...	...	17.00	...	16 50	...	...	...	17.00	...	110
Osceola, c.	25	95,000	61.75	60.25	60 00	59 50	60.00	59.25	60 00	...	60.00	59.00	60 25	60.00	1,112
Parrot, s & c.	...	229,850	40.50	39.50	40.00	39 75	40 00	39.50	40.00	39 25	40.00	39.50	39.88	39.50	2,573
Pioneer	10	100,000	...	...	...	...	...	...	.40	...	40	...	...	...	150
Quincy, c	25	100,000	137	135	135	...	137	...	135	...	135	...	...	...	77
Rhode Island	25	100,000	3.25	...	...	...	...	...	...	...	...	...	...	...	8
Santa Fe, g. c.	10	250,000	...	...	...	...	4 50	...	4 50	...	...	...	...	...	100
San. Ysabel, g.	25	130,000	1.00	...	.75	...	.75	...	...	...	...	...	...	...	1,020
Tamarack, c.	25	60,000	...	.81	...	...	...	...	...	...	...	...	...	...	5
Tecumseh	25	80,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Tri Mountain	25	100,000	...	...	...	...	7.00	...	...	...	6 50	...	...	...	175
Union C. I.	25	80,000	...	...	...	...	...	...	...	...	...	...	...	...	...
United States.	25	250,000	...	...	...	...	...	...	...	...	...	...	...	...	...
U. S. Oil	25	100,000	15 50	15.00	15 13	15 00	15.25	15.00	15 00	...	15 50	15 00	15.00	...	880
Utah Cons,g. c	5	30,000	26 00	25 13	25 25	24.75	25.13	25.00	25 00	...	...	...	26.50	24 50	3,267
Victor	5	200,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Victoria	25	100,000	...	...	...	...	...	...	...	...	...	...	2.25	...	...
Washington	25	60,000	...	...	...	...	...	...	...	...	...	...	...	...	...
White Knob	100	50,000	...	...	15.50	...	...	...	17.00	...	...	...	...	...	150
Winona, c.	25	100,000	...	...	...	...	...	...	...	...	...	...	...	...	...
Wolverine, c.	25	60,000	8 00	...	38.00	...	38.00	...	...	...	...	...	...	...	57
Wyandotte	25	100,000	...	...	...	...	...	...	...	...	...	...	...	...	...

† Official quotations Boston Stock Exchange. Total sales, 24,026.

SALT LAKE CITY, UTAH.

June 2.

Stocks.	Shares	Par val.	Bid.	Asked.	Stocks.	Shares.	Par val.	Bid.	Asked
Ajax	300,000	$10	$0.50	$0.60	Horn Silver	400,000	$25	$1 10	$1.50
Alice	400,000	25	.37½	...	Joe Bowers	700,000	1	.06	.10
Buckeye	500,000	1	.01¾	.02¾	Joe Bowers Ext.	400,000	¼	.00¾	.01¼
Bullion-Beck & Ch.	100,000	10	3.40	4 30	Little Pittsburg	400,000	5	...	.01
Centennial Eureka	200,000	25	23.00	25.00	Lower Mammoth	150,000	1	.65	.66
Chloride Point	500,000	1	.05	.12	Mammoth	400,000	5	2 25	2.28¼
Daisy	500,000	3	.00⅝	.00¾	May Day	400,000	¾	1 08	1.09
Dalton	500,000	5	.02⅜	.02⅝	Mercur	200,000	25	5.25	6 00
Dalton & Lark	2,500,000	1	.05	.07⅝	Northern Light	400,000	5	.07½	.08¾
Daly	150,000	20	1.30	1 50	Ontario	150,000	100	6.75	7.50
Daly West	150,000	20	17.01	17 08	Richmond-Am.	500,000	1	.05	.15
Dexter	200,000	5	.60	2.90	Sacramento	1,000,000	5	2 2½	2.3½
Eagle	250,000	1	...	...	Silver King	150,000	20	45 00	...
Eagle & Blue Bell	250,000	1	.80	.90	Star Consolidat'd	500,000	1	.40	.45
Four Aces	250,000	1	.04⅞	.05¼	Sunbeam	250,000	1	.01	...
Galena	100,000	10	.10	.30	Sunshine	250,000	10	.06	.20
Geyser-Marion	300,000	5	.03	.03¾	Swansea	100,000	5	4 12½	5.00
Golden Eagle	400,000	1	.01¾	.02¾	South Swansea	150,000	1	1.19	1.21
Grand Central	250,000	1	5 63	5 67½	Utah	100,000	1	.40	.99
Homestake	400,000	1	...	...	Valeo	200,000	10	.79½	3.82½

TORONTO, ONT.

NAME OF COMPANY.	Par val.	May 30. B.	May 30. A.	May 31. B.	May 31. A.	June 1. B.	June 1. A.	June 2. B.	June 2. A.	June 4. B.	June 4. A.	June 5. B.	June 5. A.	Sales
Ontario:														
Golden Star	1	.15¾	.17	...	...	.15¾	.17	.13¾	.14¾	.14½	.16¾	...	...	27,650
Ham Reef	1	.09	.11	...	...	.09¾	.11	.09¾	.11	.09¾	.11	...	...	31,500
Olive	1	.10	.16	...	...	.08	.18	.08	.18	.10	.18	...	...	1,000
British Col.:														
Athabaska	1	.14	.25	...	...	.14	.25	.14	.25	.14	.24	...	...	...
Big Three	1	.03¾	.07	...	...	.03¾	.06	.03	.04¾	.03	.05	...	...	500
Black Tail	1	.18	.32	...	...	.18¾	.32	.17	.21	.16	.21	...	...	1,500
CaribooM'K	1	.90	.98	...	...	.92	.99	.92	.99	.91	1 00	...	...	1,000
Crow's N. C.	25	36.00	45.00	...	...	38 00	45 00	38.00	45.00	38 00	50 00	...	...	...
Deer Trail	1	.06¾	.07¾	...	...	.06¼	.07¼	.05¼	.06¼	.06	.06¼	...	...	11,500
Dom. Coal	25	42.00	44.25	...	...	42 00	44.00	42.00	44.00	42 00	44.25	...	...	10
Eve. Star	1	.09	.11¾	...	...	.09	.11¾	.09	.11¾	.09	.11¾	...	...	500
Fairview	1	.07¾	.08¾	...	...	.07¾	.09	.06¾	.08	.06	.07	...	...	1,000
Iron Mask	1	.30	.40	...	...	.30	.40	.31	.40	.30	.40	...	...	...
Knob Hill	1	.47	.60	...	...	.46	.60	.46	.60	.47	.60	...	...	...
Minnehaha	1	.01	.04	...	...	.01	.04	.01

STOCK QUOTATIONS.

COLORADO SPRINGS, COLO.‡

NAME OF COMPANY.	Par val	June 4 B.	June 4 A.	June 5 B.	June 5 A.	June 6 B.	June 6 A.	June 7. B.	June 7. A.	June 8. B.	June 8. A.	June 9. B.	June 9. A.	Sales.
Acacia	$1	.35½	.35¾	.35½	.35¾	.35½	.35¼	.34	.34¾	.33½	.33¾	.33	.33¼	59,500
Alamo	1	.15	.15¼	.15	.15¼	.15	.15¼	.14¾	.15¼	.14¾	.15	.14¾	.15	5,000
Am. Con	1	.05¾	.06¼	.05¾	.06	.05¾	.06	.05¾	.06	.05¾	.05¾	.05¾	.05¾	1,050
Anaconda	1	.34	.35½	.34	.35	.34	.35	.35	.36	.35	.36¼	.35	.36	27,400
Anchor	1	.03	.03¾	.03	.03¾	.03	.03¾	.03¾	.03¾		.03¾			2,000
AnchorialL	1	.85		.85		.85		.85						80
Antelope	1	.03	.03¼	.03	.03½	.03	.03½	.03	.03¼	.03	.03¾	.03		22,000
Aola	1	.05½	.05¾					.06	.06¼	.05	.05¾		.05¾	1,006
Arcadian	1							.04						7,000
Arg'ntum J	1		.20		.20		.20		.20		.20		.20	500
Banner	1	.04¼	.04¾	.04	.04¾	.04	.04¾	.04	.04¾		.04¼	.04¼	.04¾	
Battle Mt.C.	1	.29¼	.29¾	.30	.30¼	.30	.30¼	.29	.30		.30		.29¼	24,800
Ben Hur	1	.07¼	.07¾	.07¼	.07¾	.07¼	.07¾	.07	.07¾	.07	.07¾	.07	.07¼	10,900
Black Bell	1	.11	.11¼	.11	.11¼	.11	.11¼	.11	.11¼		.11¼	.11¼	.11¼	13,000
Blue Bell	1	.11¾						.11¾		.11¼				
Bob Lee	1	.05¾	.06¼	.06¼	.06¾	.06¼	.06¾	.06	.06¼	.05¾	.06	.05¾	.05¾	14 000
Buckhorn	1	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	.06	.06¼		.06¼		.06¼	4,000
Cadillac	1	.02	.02¼	.01¾	.02¼	.01¾	.02¼	.02¼	.02¾	.02	.02¾	.02	.02¾	5,000
Central C'n	1	.05¾	.06¼	.05¾		.05¾		.05¾		.05¼		.05¼	.05¾	
Champion	1	.07¾	.07¾	.07¾	.07¾	.07¼	.07¾	.07¾	.07¾	.07¼	.07¾	.07¾	.07¾	5,000
Chicolo	1	.03	.03¼	.03	.03¼	.03	.03¼	.03	.03¼	.03	.03¼	.03	.03¼	11,000
C.K.&N	1	.02½	.02¾	.02½	.02¾	.02½	.02¾	.02¾	.02¾	.02½	.02¾	.02½	.02¾	29,000
C.C.Col'bia	1	.07¾	.08	.07¼		.07½		.07¾	.08	.07¾	.07¾	.07¾	.08¼	14,000
C.C G. Ext.	1	.07¾	.09¼	.08¾		.08¾		.08¾	.08¾	.08¾	.09¼	.08¾	.08¾	2,000
C.C. & Man.	1	.10¾	.10¾	.10¾	.11	.10¾	.11	.10¾	.10¾	.09¾	.10¾		.10¾	3,000
Copper Mt.	1	.04½	.04¾	.04¼	.04¼	.04¼	.04¾	.04¾	.04¾	.04¾	.04¾	.04¼	.04¾	22,000
Creede&CC	1	.14	.14¾					.14	.15½	.14		.14	.14½	1,000
C. C. Con	1	.13¾	.14	.13½	.14	.13¾	.14	.13¾	.14	.13¾	.14	.13¾	.14	16,500
Dante	1	.12¾	.12½		.13		.13	.13	.13½	.12¾	.12¾	.12½		25,000
Des Moines	1	.06½	.07	.06¾	.06¾	.06½	.06¾	.06¾	.06¾	.06¾	.07	.06¾	.07	8,065
Eclipse	1	.06	.06¾		.06¾		.06¾	.06	.06¾	.05	.06¼	.05	.06¾	21,000
ElktonCon	1	1.50	1.48¾	1.49¾	1.48¾	1.49¾	1.50¼	1.20¼	1.21	1.22	1 22¼	1.23	.43	17,846
El Paso G.	1	.44	.44¼									.42	.43	16,100
Enterprise	1	.21		.21¾	.22¼	.21¾	.22¼	.21¾	.21¾	.21½	.22	.21¾	.21¾	8,500
F.Rawlings	1		.42¼		.41		.41		.42		.42	.36	.42	
Favorite	1													
Findley	1	.14½	.15	.14¾	.15	.14¾	.15	.15	.15¾	.14¾	.14¾			16,000
Garf. Con	1		.18		.18		.18		.15		.18		.20	
Golden Fi	1			.32	.42	.32	.42	.32	.40	.32	.42	.32	.40	
Gold Hill	1	.03¾	.03¾	.03½	.03¾	.03½	.03¾	.03¾	.03¾	.02¾	.03¼	.02¾	.03¼	25,000
Gold.Sov'n.	1	.09¾	.10	.09¾	.10¾	.09¾	.10¾	.09¾	.09¾	.09¾	.09¾	.09¾	.09¾	49,000
Hayden	1	.02	.02¼	.02	.02¼	.02	.02¼	.02	.02¼	.02	.02¼	.02	.02¾	11,000
Ida May	1	.29¼	.30	.29¼	.29¾	.29¼	.29¾	.29¼	.29		.29¾	.27	.28	6,000
Indep'ndce	1	.61¾	.61¾	.6 3¼	.61¾	.61¼	.61¾	.62	.62¼	.61	.62¼	.61¾	.61¾	16,400
Ing. Con	½	.2.3¾	.23¾	.20¾		.20¾		.19	.19½	.19¾	.20¾	.21¾	.21¾	167,000
Isabella	1	1.25	1.28	1.24¾		1.24¾		1.26	1 26¼	1 24¾	1.25½	1.25¾	1.25¾	27,500
Jack Pot	1	.62	.63¼	.60	.61	.60	.61	.60	.61¾	.60	.61	.58¾	.59	14,500
Josephine	1	.02¾	.0 .9	.02¾	.02¾	.03¾	.02¾	.02¾	.02¾	.02	.02¼	.02	.02¾	7,000
Key West	1	.03¼	.03¾	.03¼	.03¾	.03¾	.03¾		.03¾	.03	.03¼	.03¼	.03¾	25,500
Lexington	1	.17¼	.17¾	.17¾	.18	.18	.18¼	.17¾	.17¾	.17¼	.17¾	.17	.17¾	84,500
Magnet R	1	.03¾	.03¾	.03¾	.0 3¾	.03¾	.03¾	.03¾	.03¾	.01	.03¾	.03¼	.03¾	7,000
Margaret	1		.03	.02¾	.03	.02¾	.03	.03		.02¼	.02¼	.02¼	.02¼	1,000
Margery	1	.04¼		.04	.04¼	.04¼	.04¼	.04¼	.04¾	.04	.04¼	.04	.04¼	18,500
Matoa	1	.34¼	.34½	.33	.34¾	.33¾	.34	.33¾	.34¼		.35	.33	.34	23,400
Midway	1	.06	.06¼	.05¾	.06	.06	.06	.06	.05¾	.05¼	.05¾	.05¾	.06	18,000
M. J. T	1	.04	.04¼	.04	.04¼	.03¾	.04	.04¼	.04¼	.04	.04¼	.04	.04¼	4,000
Mobile	1	.03½	.03¾	.03¾	.03¾	.03¾	.03¾	.03¾	.03¾		.03¼	.03¼	.03¾	11,000
Moll.Dwyer	1	.03¾	.04	.03¾	.04	.03¾	.04	.03¾	.04	.03¼	.03¾	.03¾	.04	28,000
Mollie Gib.	1		.25	.24	.25	.24	.24¾	.24	.25		.25	.23	.25	2,500
Monarch	1	.08¾	.09¼	.08¾	.08¾	.08¾	.08¾	.08	.08¼			.07¾	.08¾	17,000
Montreal	1	.09	.09¼	.09	.09¼			.09	.09½	.09	.09¼	.9	.09¼	12,000
Moon-A'e'r	1	.65	.70	.61¾	.66	.62	.64	.61	.64		.60	.60¾	.64	2,500
Morning S	1	.03¾	.03¾	.03¾	.04	.03¾	.04		.03¾	.03½	.03¾	.03¼	.03½	3,000
Mtn.Beauty	1	.10	.10¼	.09½	.09¼	.09½	.09¼	.09	.09¼	.09	.09¼	.09	.09¼	71,000
Mt. Rosa	1		.80		.80		.80		.78		.80		.80	1,000
National	1	.10¾	.11	.10¼	.10¾	.10¼	.10¾	.10¾	.10¾	.11¾	.12	.11¾	.12	215,000
Nellie V	1	.12	.12¼	.11¾	.12		.12¼		.11¾		.12	.11	.14¼	15,000
New Haven	1	.08¾	.08¾	.08½	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾	44 000
OliveB'nch.	1	.05¾	.06¼	.06	.06½	.05¾	.05¾	.06	.05¾	.06	.05½	.05¾	.05¾	23,000
Oriole	1	.04¾	.05	.04¾	.05	.04¾	.05	.04¾	.05	.04¾	.05½	.04¾		12,000
Orphan	1		.19¾	.18½	.19¼		.19¾		.19	.18¼	.19		.19	1,000
Pelican	1	.02¼	.03	.02¾	.02¾	.02¾	.03	.02¾	.03		.02¾		.02¾	2,000
Pharmacist	1	.12¾	.12¾	.13	.1 .3	.12¾	.12¾	.12¾	.13¼	.12	.11¾	.12		22,000
Pilgrim	1	.13¼	.13¾	.13¼	.13¾	.13	.13¾	.13¼	.13¾	.13	.13¾		.13¾	5,000
Pinnacle	1	.21	.22	.21	.22		.21			.20		.19	.20¾	8,000
Portland	1		3.15	3.05¾		3.95¾		3.05		3.00	3.05	3.00	3.02	10,800
Prince Alb.	1	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¼	.04¾	.04¼	.04¾	16,000
Princess	1	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	.06	.06¾	.06	.06¾	4,000
Progress	1	.06¾	.06¾	.06¾	.06¼	.06¾	.06¾	.06¾	.07	.06¾	.07	.06¾	.07	4,000
Pythias	1	.06¼	.06¾	.06½	.06¾	.06½	.06¾	.06	.06¼	.06¼	.06¾	.06¾	.07	
Raven	1	.7 .¾	.76¼	.76		.76							.06¼	1,500
Republic	1	.06¾	.06¾	.06	.06¼	.06	.06¼	.06¼	.06¾	.06	.06¼	.06	.06¾	3,000
Rob'tBurns	1	.04¾	.04¾	.04¾	.05	.04¾	.05	.04¾	.04¾	.04¼	.04¾	.04¼	.04¾	32,000
Rose Maud	1	.09¾	.10	.09¼	.10	.09¾	.10		.10	.09¾	.09¾	.09¾	.09¾	500
Rose Nicol	1	.14	.14¾					.14	.14¾	.13¾	.14	.14¼	.14	23,000
Silver Gold	1	.01¾	.02¾	.01¾	.02¼	.01¾	.01¾	.01¾	.02¼	.01¾	.01¾	.01¼	.01¾	5,000
Specimen	1	.12¼	.13¼	.12	.13¾	.13	.13¾	.13	.13¾	.13¾	.13¾	.13¾	.13¾	15,000
Tornado	1	.52	.53¾	.52	.53	.52	.53							2,000
Touraine	1													
Trachyte	1	.06¾	.07¼	.06¾	.07	.06¾	.07	.06¾	.07	.06¾	.07	.06¾	.06¾	8,000
Uncle Sam	1	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	.04¾	8,000
Union	1	.40	.40¾	.40	.41	.40	.41	.40	.41¾					4,000
Vindicator	1	1.42		1.43	1.48	1.43	1.48		1.50			1.41	1.50	
Work	1	.32¼	.32½	.31¾	.32½	.31¾	.32¼	.31¾	.31¾	.31	.31¼	.30¾	.31¼	34,000
Zenobia	1		.16	.15¼	.16	.15¼	16	15		.15	.15¼	.15	.16¼	4,000

‡ Colorado Springs Mining Stock Exchange. Total sales, 1,727 591 shares.

MONTREAL CANADA.*

NAME OF COMPANY.	Par Val	Week, June 11. H.	L.	Sales.	NAME OF COMPANY.	Par Val	Week, June 11. H.	L.	Sales.
Big Three	$1	.04¾	.02¾	115,500	Monte Christo	$1	.06	.03¾	
California	1	.10¾	08	3,400	Montreal G. F	1	.05	.03	
Can. Gold Fields	0.10	.07½	.05¾	7,700	Montreal-London	....	.24	.23	5,600
Deeca	1	.06	.04	7 500	Okanogon	1			
Deer Trail Con	1	.07¼	.06¼	15,000	Payne	1	1.10	1.00	500
Giant	1				Rambler-Cariboo	1	.28	.14	
Golden Star	1	.20	13	2,000	Republic Con	1	1.00	.87	
Gold Hills Dev	1	.05	.02		Slocan-Sovereign	1	.30	.20	700
Knob Hill	1	.60	50		Virtue	1	.96	.85	2,000
Majestic	1								

*Montreal Stock Exchange. Total sales, 160,000 shares.

MEXICO.

June 2.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g.	Cl'g.	NAME OF COMPANY.	No. of shares.	Last div'd	Prices. Op'g.	Cl'g.
Durango:					Hidalgo:				
Barradon y Cab	2,400		$40	$40	Real del Monte	2,554	10.00	550	600
Candelaria de Pan.	1,200		20	20	San Francisco Hc	6,000	3.00	170	145
Capuzaya Guan	2,400		15	30	Soledad	960	5.00	270	230
Restauradora	10,000		10	20	Sorpresa	960	7.50	290	280
Guanajuato:					Union Hacienda	2,000	5.00	250	240
Angustias	2,400	5.00	190	180	Mexico:				
Cinco Senores y An	2,000	15.00	340	365	Coronas	500		75	75
Guadalupe Hacie'a	10,000	2.00	205	200	Esperanza y An	3,000	10.00	1,900	1,250
Trinidad, aviadora, do. aviada	2,000		15	6	Michoacan				
	400		15	10	Luz de Borda ava	4,000		22	12
Zona Minera de Pos	2,400		6	8	S. Luis Potosi:				
Hidalgo:					Concep. y An	2,400		255	270
Amistad y Concord	9,600	1.47	20	15	Zacatecas:				
Arevalo	720		200	200	Asturiana y An	2,500	10.00	140	180
Bartolome de Med.	2,000	2.00	65	70	Cabezon	2,400		15	15
Carmen	1,100	7.75	240	200	C'delar. de Pinos	2,500		230	240
Luz Ca Maravillas	800		130	100	Palma de Somb	2,400		50	40
Pabellon	800	27.80	30	20					

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	June 2. B.	June 2. A.	June 4. B.	June 4. A.	June 5. B.	June 5. A.	June 6. B.	June 6. A.	June 7. B.	June 7. A.	June 8. B.	June 8. A.	Sales.
Alamo	1					.14¾	.15¼			.14¾	.15¼			
Anaconda	5	.33¾	.34			.34	.35¼	.34		.34				
Aola	1							65¼	.05¾				.35¼	
Arg. J	1							.20½			.20			
C. K & N	1	.02¾				.02¾				.02¾				
Dictator	1	.02¾	.03	.02¾	.03¼	.02¾	.03¾			.02¾	.03¼	.02¾	.03	5,000
Elkton	1			1.50		1 49				1.49				
Findley	1	.15	.16					.15	.15¾	15	.15¾			2,000
Gold Sov'n.	1							.09¾	.10					1,000
Golden Age	1	.08	.08¾	.08¾	.08¾	.08¾	.08¾							1,000
Indepen'ce	1	.66	.67	.61¾		.61¾	.62¼	.62¾	.63					14,000
Iron Clad	1	.06¾	.06¾	.06¾	.06¾	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾	1,000
Isabella	1	1.25	1.27	1.25¾	1.26	1.23¾	1.24¾			1 25¼	1.25½	1.26¾		
Magnet R'k	1					.03¾	.04¾	.03¾	.03¾	.03¾	.04			500
National	1			.10¾	.11¼	.11¾	.11¾							1,400
New Haven	1	.08¾	.0888	.08¼	.08¾	.08¾	.08¾	.08¾	.09¼	.08	.08¾	.08¾	.09¾	2,000
New Zeal'd	1	.41		.40		.41		.41						4,000
Old Gold	1	.01¾	.02	.01¾	.02	.01¾	.02		.0188	.01¾	.02		.01	
Omega	1	005	.006	.005	.01	.005	.006	.005		.005		.006		
Ophir	1	.62¾	.63											1,000
Puritan	1	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	.01¾	
Union	1			.35		.40								
Vindicator	1	1.49¼	1.50¼			1.49¼	1.50¼							
Wh.of Fort.	1	.01¾		.01¾	.01¾	.01¾	.02			.01¼		.01¼		

‡ Official Quotations Denver Stock Exchange Total sales, 39,000 shares.

PARIS.

May 24.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning.	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs	27,000,000	2,000	75.00	1,949.00	1,915.00
" " Firminy	"	" "	5,000,000	500	125.00	3,525.00	3,515.00
" " Five-Lille	"	" "	12,000,000	500	35.00	540.00	527.00
" " Huta-Bank	Russia	Iron & steel		500		4,575.00	4,675.00
" " la Marine	France	Steel mfrs	20,000,000	500	50.00	1,665.00	1,780.00
Anzin	"	Coal			220.00	6,800.00	6,800.00
Boleo	Lower Cal	Copper		500	1.07	2,990.00	2,980.00
Briansk	Russia	Coal & Iron		500		1,201.00	1,190.00
Champ d'Or	S. Africa	Gold	8,575,000	25	3.75	37.00	37.50
Courrieres	France	Coal	600,000	500	70.00	3,070.00	3,010.00
Dombrowa	Russia	Coal		500	12.50	1,040.00	1,045.00
Donetz	"	Steel				1,027.50	1,027.50
Dynamite Centrale	France	Explosives		500	20.00	480.00	485.00
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,298.00	1,276.00
Fraser River	Brit. Col'mb	Gold	250,000	25		11.00	9.50
Huanchaca	Bolivia	Silver	40,000,000	125	5.00	170.50	165.50
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	596.00	595.00
Malfidano	Italy	Zinc	12,500,000	500	50.00	1,280.00	1,250.00
Metaux, Cie. Fran. de	France	Metal d'iers	25,000,000	500	30.00	507.00	494.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,225.00	1,225.00
Naphte Baku	Russia	Petroleum				824.00	822.50
Naphte, Le	"	"	250,000	25		1,310.00	1,300.00
Naphte Nobel	"	"				665.00	667.50
" " parts	"	"				13,350.00	13,350.00
Nickel	N. Caled'nia	Nickel	10,000,000	250	10.00	472.50	470.00
Penarroya	Spain	Coal, etc		500	95.00	2,760.00	2,750.00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		4.50	4.50
Salines de l'Est	France	Salt		500	6.50	280.00	270.00
Salines du Midi	France	" etc		500	25.00	1,010.00	1,005.00
Vieille Montagne	Belgium	Zinc	9,000,000	80	35.00	750.00	730.00

LONDON.

June 1.

NAME OF COMPANY.	Country.	Author-ised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
				£ s. d.	s.d.	£ s. d.	£ s. d
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	1 0 0	1 0 0
Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	May, 1900	17 6	1 0 0
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 15 0	5 0 0
Anaconda, c., s	Montana	6,000,000	5 0 0	8 2	Apr., 1900	8 10 0	8 15 0
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1900	3 0	4 0
Elkhorn Priority (New)	Colorado	87,500	1 0 0	2 0	June, 1898	1 8	3 9
Golden Gate, g	California	80,000	1 0 0			1 0	1 2
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Jan., 1900	15 0	17 6
Hall Mines, c., s	British Col	300,000	1 0 0	1 0	May, 1899	1 0	1 6
Le Roi, g	"	1,000,000	5 0 0	5 0	Nov., 1899	6 10 0	6 12 6
Lillie, g	Colorado	250,000	1 0 0	2¾	Apr., 1900	7 6	12 6
Montana, g., s	Montana	600,000	1 0 0		Apr., 1899	3 0	4 0
Mountain Copper	California	1,250,000	5 0 0	11 0	Apr., 1900	5 10	5 15 0
Newfoundland, c	Newfoundland	280,000	1 0 0			2 6	7 6
Palmarejo & Mexican, g	Mexico	700,000	1 0 0			2 0	3 0
Stratton's Independence	Colorado	1,100,000	1 0 0	2 0	June, 1900	2 16 3	2 18 9
Copiapo, c	Chile	200,000	2 0 0	4 0	Dec., 1899	4 0 0	4 2 6
Fraction & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1899	1 12 6	1 15 0
St. John del Rey, g	Brazil	600,000	1 0 0	1 6	June, 1900	1 7 0	1 10 0
UtahCon., g (High'nd Boy	Utah	300,000	1 0 0	rts.	Mar., 1898	5 0 0	5 10 0
Velvet, g	BritishCol'mbia	100,000	1 0 0			17 6	1 2 6
Ymir, g	"	200,000	1 0 0	1 0	Nov., 1899	1 18 9	1 16 3
British Am. Corp	"	1,500,000	1 0 0	2 0	Mar., 1900	13 6	14 6
Linares, f	Spain	45,000	3 0 0	15 0	Mar., 1900	9 0 0	10 0 0
Mason & Barry, c., sul	Portugal	420,000	2 0 0	10 0	May, 1900	3 17 6	4 2 6
Rio Tinto, c	Spain	1,625,000	5 0 0	45 0	May, 1900	51 17 6	52 2 6
" pref	"	1,625,000	5 0 0	2 6	" 1900	6 2 6	6 5 0
Tharsis, c	"	1,250,000	2 0 0	15 0	Apr., 1900	8 0 0	8 5 0
Assoc. Gold Mines	W. Australia	500,000	1 0 0	1 6	Jan., 1900	3 17 6	3 0 0
Broken Hill Prop., s	N.S. Wales	384,000	8 0	1 0	Apr., 1900	2 5 6	2 6 6
Great Boulder Prop	W. Australia	175,000	2 0	6	Apr., 1900	1 10	1 11 0
Hannan's Brownhill, g	"	140,000	1 0 0	7 6	May, 1900	7 10 0	7 12 6
*Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	May, 1900	8 17 6	9 2 6
Kalgurlie, g	"	120,000	1 0 0	rts	Oct., 1899	5 0 0	5 5 0
Lake View Consols, g	"	250,000	1 0 0	10 0	May, 1900	10 10 0	10 12 6
Mt. Lyell M. & R., L, c	Tasmania	900,000	3 0 0	3 0	July, 1900	8 2 6	8 7 6
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	June, 1900	4 17 6	5 0 0
Waihi, g	New Zealand	320,000	1 0 0	2 6	June, 1900	10 5 0	10 7 6
Champion Reef, g	Colar Fields	220,000	10 0	4 0	May, 1900	6 2 6	6 5 0
*Mysore Gold, g	"	250,000	10 0	5 6	Mar., 1900	6 8 9	6 11 3
Nundydroog, g	"	242,000	1 0 0	2 0	Mar., 1900	3 8 9	3 11 3
Ooregam, g	"	145,000	1 0 0	2 0	apr., 1900	3 15 0	3 17 6
" pref. g	"	130,000	1 0 0	2 0	"	4 15 0	5 0 0
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts	May, 1899	3 14 9	3 16 3
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1900	5 18 9	6 1 3
" pref	"	150,000	2 0 0	5 0	" 1900	5 10 0	5 15 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	5 17 6	6 2 6
Con. Deep Level, g	"	200,000	1 0 0	x all	June, 1898	1 7 6	1 12 6
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	16 5 0	16 15 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	21	Sept., 1899	27 7 6	27 12 6
Ferreira, g	Transvaal	90,000	1 0 0	30 0	Aug., 1899	22 5 0	23 0 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	Aug., 1899	10 0 0	10 10 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	Aug., 1899	7 2 6	7 7 6
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	8 12 6	8 17 6
Jagersfontein, d	Orange Fr. St.	1,000,000	5 0 0	6 0	Apr., 1900	15 0 0	16 5 0
Johannesburg Con. Invst.	So. Africa	2,750,000	1 0 0	2 0	Nov., 1899	2 0 0	2 2 6
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	6 10 0	6 15 0
Langlaagte Estate, g	"	470,000	1 0 0	3 0	Sept., 1899	3 10 0	3 15 0
May Con., g	"	290,000	1 0 0	6 0	Aug., 1899	4 16 3	4 18 9
Meyer & Charlton, g	"	100,000	1 0 0	8 0	July, 1899	5 10 0	5 15 0
Namaqua, c	Cape Colony	200,000	2 0 0	4 0	Dec., 1899	5 8 9	5 11 3
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	4 1 3	4 3 9
Rand Mines, g	So. Africa	490,000	1 0 0	15 0	Aug., 1899	41 15 0	42 0 0
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	Aug., 1899	9 5 0	9 10 0
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1899	1 5 0	1 7 6
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	6 3 9	6 6 3
Wolhuter, g	"	560,000	4 0 0	2 0	Feb., 1899	4 17 6	5 2 6

*Ex-dividend.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Authorized Capital Stock.	Shares Issu'd No.	Par Val	Dividends. Paid, 1900.	Total to Date.	Latest. Date.	Amt.
1	Ætna Con., q.	Cal	$500,000	100,000	$5	$30,000	$225,000	April 1900	.15
2	Alabama Coal & Iron, pf	Ala	2,500,000	25,000	100	87,500	87,500	May. 1900	1.75
3	Alaska-Mexican, g.	Alask	1,000,000	180,000	5	36,000	465,031	April. 1900	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	150,000	4,370,000	April. 1900	.37½
5	Alice, g. s.	Mont.	10,000,000	400,000	25	.....	1,075,000	April. 1898	.05
6	Alliance, g.	Colo.	500,000	450,000	1	.....	31,500	Dec. 1899	.07
7	Amalgamated, c.	Mont.	75,000,000	750,000	100	3,000,000	4,500,000	April. 1900	2.00
8	Amanda, g.	Colo.	1,000,000	1,000,000	1	10,000	10,000	June. 1900	.01
9	Amazon, g.	Colo.	600,000	600,000	1	102,000	121,882	May. 1900	.10
10	American Coal	Md.	1,500,000	60,000	25	75,000	802,500	Mar. 1900	1.25
11	American Gold, g. s. c. l.	Colo.	3,000,000	300,000	10	.....	446,000	Dec. 1899	.04
12	Amer. Sm. & Ref., pref.	U. S.	32,500,000	325,000	100	1,263,925	1,832,675	April. 1900	2.14
13	Am. Steel & Wire, pf.	U. S.	40,000,000	400,000	100	2,100,000	4,900,000	July. 1900	1.75
14	Am. Steel & Wire, com.	U. S.	50,000,000	500,000	100	1,750,000	1,750,000	July. 1900	1.75
15	Am. Zinc, Lead & Sm.	Mo.	2,500,000	60,000	25	60,000	180,000	Jan. 1900	1.00
16	Anaconda Copper	Mont.	30,000,000	1,200,000	25	2,400,000	14,550,000	April. 1900	2.00
17	Anchoria-Leland, g.	Colo.	600,000	600,000	1	.....	198,000	April. 1899	.03
18	Anglo-Mexican, g.	Mex.	2,001,625	400,230	5	.....	1,825,048	Dec. 1899	.24
19	Apollo Con., g	Alask	1,000,000	100,000	10	70,000	210,000	Jan. 1900	.07
20	Appie Ellen, g.	Colo.	600,000	600,000	1	.....	25,000	Aug. 1898	.01
21	April Fool, g.	Nev.	500,000	500,000	1	.....	16,000	Oct. 1899	.01
22	Argentum-Juniata, g.	Colo.	1,300,000	650,000	2	.....	156,000	Oct. 1895	.03
23	Argonaut, g.	Cal.	2,000,000	200,000	10	70,000	490,000	May. 1900	.05
24	Arizona Copper	Ariz.	3,190,550	.....	...	421,153	1,309,572	Mar. 1900	1.32
25	Associated, g.	Colo.	1,250,000	1,250,000	1	.....	84,000	Feb. 1899	.01
26	Atlantic, c.	Mich.	1,000,000	40,000	25	80,000	860,000	Feb. 1900	2.00
27	Aurora, l.	Mich.	2,500,000	100,000	25	.....	890,000	June. 1899	.50
28	Bald Butte, g. s.	Mont.	250,000	250,000	1	.....	769,648	Dec. 1899	.03
29	Bankok Cora Belle, s.	Colo.	600,000	600,000	1	.....	107,510	July. 1896	.01
30	Battle Mtn. Con., g.	Colo.	2,500,000	2,500,000	1	.....	.....	.....	.....
31	Big Seven, g.	Cal.	100,000	100,000	1	.....	6,000	April 1898	.03
32	Big Six, g. s.	Colo.	500,000	500,000	1	.....	15,000	May. 1898	.00½
33	Boston-Aurora, pref.	Mo.	800,000	32,000	25	37,120	66,160	May. 1900	.50
34	Boston & California.	Cal.	600,000	600,000	1	.....	72,000	June. 1899	.06
35	Boston & Colo. Smelting	Colo.	750,000	15,000	50	22,500	202,500	April. 1900	.75
36	Boston Duenweg, z.	Mo.	1,000,000	40,000	10	20,000	52,000	May. 1900	.10
37	Boston Get There, z.	Mo.	250,000	22,500	10	11,250	22,500	May. 1900	.10
38	Boston-Little Circle, z.	Mo-K	1,000,000	100,000	10	50,000	120,000	May. 1900	.10
39	Boston & Mont. Con.	Mont.	3,750,000	150,000	25	2,700,000	17,200,000	May. 1900	10.00
40	Boston Providence, z.	Mo.	150,000	15,000	10	3,750	11,250	May. 1900	.05
41	Boston, q.	Cal.	1,000,000	100,000	10	10,000	20,000	Jan. 1900	.10
42	Boston Sunflower, z.	Mo.	150,000	15,000	10	.....	4,500	Oct. 1899	.30
43	Breece, l.	Colo.	5,000,000	200,000	25	10,000	80,000	Feb. 1900	.05
44	Buffalo Hump, g.	Idaho	2,500,000	250,000	10	125,000	125,000	June. 1900	.10
45	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	50,000	2,488,000	May. 1900	.10
46	Bunker Hill & Sullivan.	Idaho	3,000,000	300,000	10	195,000	906,000	May. 1900	.07
47	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	3,000,000	69,850,000	June. 1900	10.00
48	Cambria Steel	Pa.	16,000,000	320,000	50	230,000	1,440,000	May. 1900	.50
49	Cariboo-McKinney, g.	B.Col	800,000	800,000	1	.....	311,965	June. 1899	.01½
50	Centen l-Eureka, g. s. l. c.	Utah.	5,000,000	100,000	25	117,700	2,267,700	April. 1900	1.00
51	Center Creek, l. z.	Mo.	1,000,000	100,000	10	10,000	10,000	Feb. 1900	.10
52	Central Lead, l.	Mo.	1,000,000	10,000	100	25,000	167,000	May. 1900	.50
53	Champion, g. s.	Cal.	340,000	34,000	10	.....	321,700	Nov. 1899	.25
54	Charleston, p. r.	S. C.	1,000,000	10,000	100	.....	200,000	June. 1899	2.00
55	Cloverdale, z.	Mo.	1,000,000	100,000	10	30,000	30,000	April. 1900	.20
56	Colonial, l.	Mo.	1,000,000	1,000,000	1	.....	10,000	Aug. 1899	.01
57	Colorado Smelting	Mont.	1,000,000	100,000	10	.....	1,945,000	Jan. 1899	1.00
58	Columbia, l.	Mo.	500,000	48,500	10	9,700	9,700	May. 1900	.10
59	Commodore, g.	Colo.	1,200,000	1,200,000	1	.....	432,000	Jan. 1899	.04
60	Commonwealth, z., pref.	Mo	500,000	100,000	5	30,000	50,000	June. 1900	.05
61	Consolidated Gold Mines	Colo.	1,000,000	1,000,000	1	40,000	50,000	May. 1900	.01
62	Consolidation Coal	Md.	10,250,000	102,500	100	205,000	5,921,650	Feb. 1900	2.00
63	Cons. Zinc & Lead, pf.	Mo.	400,000	400,000	1	8,000	8,000	Jan. 1900	.20
64	Continental, z.	Mo.	1,500,000	150,000	10	.....	.....	.....	.....
65	Cordell, z. l.	Mo.	300,000	60,000	5	15,000	18,000	May. 1900	.05
66	Cripple Creek Con., g.	Colo.	2,000,000	2,000,000	1	160,000	160,000	Mar. 1900	.08
67	Cresus, g.	Cal.	1,000,000	190,000	5	45,600	93,100	June. 1900	.06
68	Crowned King, g. s. l.	Ariz.	6,000,000	600,000	10	.....	242,760	May. 1899	.02
69	Dalton & Lark, g. s. l.	Utah.	2,500,000	2,500,000	1	.....	87,500	Mar. 1896	.00½
70	Daly, g.	Utah.	3,000,000	150,000	20	225,000	2,925,000	Mar. 1897	.25
71	Daly West, g.	Utah.	3,000,000	150,000	20	225,000	345,000	May. 1900	.25
72	Damon, g.	Colo.	2,000,000	2,000,000	1	.....	.....	.....	.....
73	Deadwood-Terra, g.	S. D.	5,000,000	200,000	25	.....	1,350,000	May. 1898	.15
74	Deer Trail Con., g.	Wash	3,000,000	3,000,000	1	.....	55,000	Dec. 1899	.00½
75	De Lamar, g. s.	Idaho	2,000,000	400,000	5	48,000	2,394,000	May 1900	.12
76	Della S., g.	Colo.	1,000,000	1,000,000	1	.....	60,000	Jan. 1897	.01
77	Delta, l. z.	Mo.	100,000	100,000	1	4,475	8,575	May. 1900	.01
78	Desloge Con., l.	Mo.	1,000,000	100,000	10	20,000	70,000	May. 1900	.20
79	Dixie, g.	Utah.	125,000	125,000	1	10,000	10,000	April. 1900	.02
80	Doe Run, l.	Mo.	500,000	5,000	100	12,500	102,500	May. 1900	.50
81	Dutch, g.	Cal.	1,500,000	130,000	10	.....	39,000	Feb. 1898	.05
82	Eldorado, g.	Cal.	1,000,000	100,000	10	.....	10,000	July. 1899	.10
83	Elkhorn, New, s. l.	Colo.	437,500	87,500	5	.....	1,325,000	June. 1898	.48
84	Elkton Con., g.	Colo.	1,250,000	1,125,000	1	33,750	754,461	Mar. 1900	.03
85	El Paso, g. s.	Colo.	900,000	900,000	1	.....	12,393	Jan. 1898	.01
86	Empire State-Idaho	Idaho	1,000,000	98,514	10	177,325	495,363	June. 1900	.30
87	Enterprise, s. l.	Colo.	500,000	500,000	1	.....	900,000	Sept. 1898	.05
88	Fanny Rawlings, g. s.	Colo.	1,000,000	1,000,000	1	.....	20,000	Aug. 1899	.01
89	Favorite, g.	Colo.	1,200,000	1,200,000	1	48,000	48,000	April. 1900	.04
90	Federal Steel, pf.	U. S.	100,000,000	532,610	100	3,195,660	4,793,520	April. 1900	3.00
91	Federal Steel, com.	U. S.	100,000,000	464,843	100	1,743,161	1,743,161	Mar. 1900	2.50
92	Fern, g.	B.Col	200,000	200,000	1	.....	10,000	Jan. 1898	.05
93	Ferris-Haggarty, c. g. s.	Wyo.	1,000,000	1,000,000	1	.....	5,000	Feb. 1899	.00½
94	Florence, s.	Mont.	2,500,000	440,000	5	22,000	252,000	April. 1900	.05
95	Frisco Con., l. s.	Idaho	2,500,000	500,000	5	.....	920,000	Nov. 1899	.25
96	Galena, s. l. g.	Utah.	1,000,000	100,000	10	.....	71,000	Sept. 1897	.05
97	Garfield Con., g.	Colo.	1,200,000	1,200,000	1	.....	34,000	May. 1899	.01
98	Geyser-Marion, g.	Utah.	1,500,000	300,000	5	.....	96,000	Sept. 1898	.02
99	Gold Coin of Victor, g.	Colo.	1,000,000	1,000,000	1	100,000	460,000	May. 1900	.02
100	Gold Deposit, g.	Colo.	500,000	500,000	1	10,000	10,000	Mar. 1900	.02
101	Gold & Globe, g.	Colo.	750,000	750,000	1	.....	51,625	July. 1898	.00½
102	Gold King, g.	Colo.	1,000,000	1,000,000	1	90,000	180,000	June. 1900	.03
103	Gold Sovereign, g.	Colo.	3,000,000	3,000,000	1	.....	.....	.....	.....
104	Golden Cycle, g.	Colo.	1,000,000	200,000	5	50,000	308,500	May. 1900	.05
105	Golden Eagle, g.	Colo.	500,000	500,000	1	5,000	25,000	June. 1900	.01
106	Golden Fleece, g. s.	Colo.	600,000	600,000	1	.....	569,480	Feb. 1897	.01
107	Golden Reward, g.	S. D.	1,000,000	100,000	10	.....	155,000	Feb. 1898	.15
108	Golden Star, g.	Ont.	1,200,000	1,200,000	1	.....	45,500	July. 1899	.00½
109	Grafton, g.	Colo.	1,000,000	1,000,000	1	.....	10,000	Oct. 1899	.01
110	Grand Central, g.	Utah.	250,000	250,000	1	.....	666,250	Sept. 1899	.24
111	Grand Gulch	Ariz.	250,000	240,000	1	9,600	9,600	April. 1900	.01
112	Grass Valley Expl	Cal.	100,000	30,000	2	37,500	67,500	May. 1900	.25
113	Greater Gold Belt, g.	Col	5,000,000	3,800,000	1	76,000	76,000	May. 1900	.02
114	Gwin, g.	Cal	1,000,000	100,000	10	.....	86,500	Sept. 1899	.25
115	Hall Mines, Ltd.	B. Col	1,500,000	250,000	5	.....	120,000	May. 1899	.24
116	Hecla Con.	Mont	1,500,000	30,000	50	.....	2,190,000	Dec. 1898	.50
117	Hidden Treasure, g.	Cal.	500,000	360,000	1	.....	3,600	July. 1899	.01
118	Holy Terror, g.	S. D.	500,000	500,000	1	5,000	172,000	Jan. 1900	.01
119	Home, g.	Colo.	50,000	50,000	1	75,000	75,000	June. 1900	.50
120	Homestake, g.	S. D.	21,000,000	210,000	100	525,000	8,668,750	May. 1900	.50
121	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	$25	.....	$5,250,000	Mar. 1899	.05
122	Idaho, g.	Idaho	1,000,000	1,000,000	1	$8,188	8,188	April. 1900	.01
123	Idaho, s. l.	B.Col	500,000	500,000	1	.....	292,000	Jan. 1899	.05¾
124	Independence Town & M	Colo.	1,250,000	1,250,000	1	50,000	50,000	June. 1900	.01
125	International, z.	Mo.	1,000,000	1,000,000	1	30,000	30,000	June. 1900	.01½
126	Iowa, g. s. l.	Colo.	1,666,667	1,666,667	1	7,500	97,500	Jan. 1900	.00¾
127	Iron Mountain, g. s. l. l.	Mont.	5,000,000	500,000	10	.....	507,500	April. 1898	.02
128	Iron Silver, s l.	Colo.	10,000,000	500,000	20	.....	2,500,000	April. 1889	.20
129	Isabella, g.	Colo.	2,250,000	2,250,000	1	67,500	607,500	Mar. 1900	.03
130	Jack Pot, g.	Colo.	1,250,000	1,250,000	1	.....	75,000	Dec. 1899	.06
131	Jamison, g.	Cal.	3,900,000	390,000	10	.....	50,700	April. 1899	.10
132	Keystone, g.	Colo.	1,500,000	1,500,000	1	.....	35,000	Mar. 1894	.01½
133	Klondike Bonanza, Ltd.	Klond	750,000	52,750	5	.....	12,060	Aug. 1899	.24
134	Lake Superior Iron	Mich.	2,100,000	84,000	25	.....	2,132,000	Feb. 1899	1.00
135	Last Chance, s. l.	B.Col	500,000	500,000	1	.....	45,000	Apr. 1899	.05
136	Last Dollar, g.	Colo.	1,500,000	1,500,000	1	30,000	60,000	Feb. 1900	.02
137	Le Roi, g.	B.Col	5,000,000	200,000	5	.....	1,305,000	Nov. 1899	1.20
138	Lexington, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
139	Lillie, g.	Colo.	1,250,000	250,000	5	45,117	349,300	April. 1900	.05
140	Little Tiger, g.	Cal.	500,000	500,000	1	15,000	47,500	Feb. 1900	.01½
141	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	80,000	1,690,000	April. 1900	.10
142	Marion Con., g.	Colo.	5,000,000	500,000	10	.....	300,000	May. 1899	.01
143	Mary McKinney, g.	Colo.	1,000,000	1,000,000	1	90,000	120,000	April. 1900	.06
144	Maryland Coal, pf.	Md.	1,885,005	18,850	100	.....	546,619	Dec. 1899	3.40
145	Matoa, g.	Colo.	1,000,000	1,000,000	1	.....	25,000	Dec. 1898	.02½
146	Mercur, g.	Utah.	5,000,000	200,000	25	75,000	1,441,000	April. 1900	.12½
147	Missouri Zinc Fields, pf.	Mo.	400,000	16,000	25	16,573	31,885	April. 1900	.16
148	Modoc, g. s.	Colo.	500,000	500,000	1	25,000	170,000	May. 1900	.01
149	Mollie Gibson, s. l.	Colo.	5,000,000	1,000,000	5	.....	4,080,000	Jan. 1895	.05
150	Monarch, g.	Colo.	1,000,000	1,000,000	1	120,000	120,000	April. 1900	.12
151	Montana Coal & Coke	Mont.	5,000,000	200,000	25	60,000	60,000	April. 1900	.30
152	Montana, Ltd., g. s.	Mont.	3,300,000	657,128	5	.....	453,700	April. 1899	.12
153	Montana Ore Purchas'g.	Mont.	2,500,000	80,000	25	160,000	1,520,000	May. 1900	1.00
154	Montreal, g.	Colo.	1,000,000	1,000,000	1	.....	7,500	Nov. 1898	.00¾
155	Monument, g.	Colo.	300,000	300,000	1	.....	18,124	Nov. 1899	.01
156	Moon-Anchor Con., g.	Colo.	1,750,000	600,000	1	.....	261,000	Nov. 1898	.07½
157	Moose, g.	Colo.	600,000	600,000	1	.....	186,000	Feb. 1896	.01
158	Morning Star Drift, g.	Cal.	240,000	2,400	100	.....	847,200	Nov. 1899	10.00
159	Morse, g.	Colo.	1,250,000	1,250,000	1	.....	215,650	May. 1899	.12
160	Mountain Beauty, g.	Colo.	2,000,000	2,000,000	1	.....	.....	.....	.....
161	Mountain Copper.	Cal.	6,250,000	250,000	25	660,000	1,893,750	April. 1900	2.64
162	Mt. Rosa, g.	Colo.	1,000,000	1,000,000	1	.....	75,000	Dec. 1899	.04
163	Mt. Shasta, g.	Cal.	100,000	20,000	5	.....	6,000	May. 1899	.30
164	Moulton, g.	Mont.	2,000,000	400,000	5	.....	500,000	Oct. 1893	.05
165	Napa Con., q.	Cal.	700,000	100,000	7	40,000	1,080,000	April. 1900	.20
166	National Lead, com.	U. S.	15,000,000	149,054	100	149,054	1,341,486	Mar. 1900	1.00
167	National Lead, pf.	U. S.	15,000,000	149,640	100	521,640	10,057,640	June. 1900	1.75
168	New Central Coal	Md.	1,000,000	50,000	20	20,000	490,000	April. 1900	.40
169	New Idria, q.	Cal.	500,000	100,000	5	40,000	210,000	April. 1900	.20
170	N. J. & Mo., z.	Mo.	250,000	2,500	100	6,000	6,000	May. 1900	2.00
171	New York, Zinc.	Mo.	700,000	28,000	25	7,000	56,000	May. 1900	.25
172	N. Y. & Hon Rosario, s. g.	C. A.	1,500,000	150,000	10	75,000	1,237,000	May. 1900	.10
173	North Star Mines.	Cal.	5,000,000	250,000	10	.....	50,000	Nov. 1899	.20
174	Nugget, g.	Colo.	625,000	1,250,000	½	.....	35,000	Aug. 1898	.00½
175	Okanogan, g.	Wash	62,500	1,250,000	5	.....	3,125	Oct. 1899	.00¼
176	Old Colony Zinc & Sm.	Mo.	1,100,000	68,329	10	33,332	33,332	April. 1900	.25
177	Omega, g.	Colo.	1,500,000	1,212,550	1	18,188	18,188	June. 1900	.01½
178	Ontario, s. l.	Utah.	15,000,000	150,000	100	90,000	13,662,500	April. 1900	.30
179	Orphan Belle, g.	Colo.	1,000,000	1,000,000	1	.....	197,899	Dec. 1899	.09
180	Original Empire, g.	Cal.	5,000,000	50,000	100	.....	530,000	Oct. 1899	1.00
181	Osceola, c.	Mich.	2,500,000	93,000	25	279,000	3,359,500	June. 1900	3.00
182	Parrot, c.	Mont.	2,300,000	230,000	10	345,000	3,380,898	Jan. 1900	1.50
183	Pennsylvania Coal.	Pa.	5,000,000	100,000	50	.....	4,050,000	May. 1899	8.00
184	Pennsylvania Con, g.	Cal.	5,150,000	51,500	100	25,750	161,325	May. 1900	.10
185	Pennsylvania Steel, pf.	Pa.	1,500,000	15,000	100	26,250	52,500	Jan. 1900	1.75
186	Petro, g.	Utah.	1,000,000	200,000	5	.....	32,000	Oct. 1899	.02½
187	Pharmacist Con., g.	Colo.	1,500,000	1,500,000	1	.....	84,000	Jan. 1898	.01
188	Pinnacle, g.	Colo.	2,000,000	2,000,000	1	.....	.....	.....	.....
189	Pioneer, g.	Cal.	1,000,000	100,000	10	.....	62,500	Mar. 1899	.12½
190	Pittsburg Coal, pf.	Pa.	32,000,000	308,000	100	1,078,000	1,078,000	April. 1900	1.75
191	Plumas Eureka, g.	Cal.	1,406,250	140,625	10	84,375	2,797,544	April. 1900	.60
192	Portland, g.	Colo.	3,000,000	3,000,000	1	330,000	2,887,080	May. 1900	.02
193	Princess, g.	Colo.	1,000,000	1,000,000	1	.....	45,000	May. 1896	.01
194	Prince Albert, g.	Colo.	3,000,000	3,000,000	1	.....	.....	.....	.....
195	Queen Bess Propr., s. l.	B.Col	500,000	100,000	5	.....	25,000	July. 1899	.12½
196	Quicksilver, pref.	Cal.	4,300,000	43,000	100	.....	1,845,411	May. 1899	.50
197	Quincy, c.	Mich.	2,500,000	100,000	25	500,000	11,570,000	Feb. 1900	5.00
198	Rambler & Cariboo, s. l.	B.Col	1,000,000	1,000,000	1	.....	60,000	Dec. 1899	.01
199	Raven, g.	Colo.	1,500,000	1,000,000	1	50,000	119,500	May. 1900	.01
200	Reco, s. l.	B.Col	1,000,000	1,000,000	1	.....	297,500	Jan. 1898	.10
201	Republic Con., g.	Wash	3,500,000	3,500,000	1	105,000	382,500	Mar. 1900	.01
202	Republic Iron & Steel, pf	U. S.	25,000,000	212,570	100	743,994	1,587,989	July. 1900	1.75
203	Reward, g.	Cal.	1,000,000	100,000	10	.....	20,000	Aug. 1899	.20
204	Russell-Irwin, z.	Mo.	250,000	25,000	10	.....	15,000	Oct. 1899	.10
205	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	138,000	Oct. 1899	.00½
206	St. Joseph, l.	Mo.	3,000,000	300,000	10	37,500	2,934,500	Mar. 1900	.50
207	Seventy-Six, g. s.	Colo.	1,000,000	200,000	5	.....	2,950	Mar. 1898	.01
208	Santa Rosalia, g. s.	Cal.	100,000	100,000	1	.....	135,000	Sept. 1899	.05
209	Silver King, g. s. l.	Utah.	300,000	150,000	20	375,000	2,825,000	May. 1900	.50
210	Small Hopes, s.	Colo.	5,000,000	250,000	20	.....	3,325,000	Feb. 1899	.10
211	Smuggler, s. l. z.	Colo.	1,000,000	1,000,000	1	300,000	1,485,000	May. 1900	.03
212	South Eureka, g.	Cal.	1,500,000	300,000	5	.....	12,000	May. 1898	.04
213	South Swansea, s. l.	Utah.	150,000	150,000	1	.....	165,000	Oct. 1899	.05
214	Specimen, g.	Colo.	1,200,000	1,200,000	1	.....	.....	.....	.....
215	Squaw Mountain, g.	Colo.	2,000,000	2,000,000	1	.....	10,000	Nov. 1899	.00½
216	Standard Con., g. s.	Cal.	2,000,000	200,000	10	40,000	3,939,226	May. 1900	.10
217	Standard, g.	Idaho	500,000	500,000	1	.....	1,745,000	April. 1899	.06
218	Stratton's Independ'ce.	Colo.	5,500,000	1,000,000	5	960,000	1,920,000	June. 1900	.48
219	Strong, g.	Colo.	2,500,000	2,500,000	1	125,000	975,000	May. 1900	.01
220	Swansea, s. l.	Utah.	500,000	100,000	5	30,000	231,500	May. 1900	.05
221	Tamarack, c.	Mich.	1,500,000	60,000	25	300,000	6,570,000	June. 1900	7.00
222	Tomboy, g.	Colo.	1,500,000	300,000	5	.....	812,000	Dec. 1899	.24
223	Tornado, g.	Colo.	1,000,000	1,000,000	1	.....	.....	.....	.....
224	Touraine, g.	Colo.	1,250,000	1,250,000	1	87,500	87,500	April. 1900	.07
225	Union, g.	Colo.	1,250,000	1,250,000	1	.....	82,744	June. 1896	.01
226	Union Leasing	Colo.	1,000,000	1,000,000	1	.....	179,000	Jan. 1899	.02
227	Union, z. l.	Kas.	500,000	500,000	1	.....	336,000	July. 1895	.04
228	United, z. l., pref.	Mo.	6,000,000	240,000	25	12,729	5,000	June. 1900	.01
229	United Verde, c.	Ariz.	3,000,000	300,000	10	750,000	15,395	April. 1900	.50
230	Utah, g.	Utah.	1,000,000	100,000	10	.....	1,612,500	May. 1900	.50
231	Victor, g.	Colo.	1,000,000	200,000	5	.....	179,000	Jan. 1899	.02
232	Vindicator, Con., g.	Colo.	1,500,000	1,065,000	1	106,500	1,155,000	Dec. 1898	.50
233	War Eagle Con., g. s. c.	B. C.	2,000,000	1,750,000	1	52,500	411,000	April. 1900	.05
234	What Cheer, z.	Mo.	225,000	22,500	10	4,500	545,250	Feb. 1900	.20
235	Wolverine, c.	Mich.	1,500,000	60,000	25	120,000	390,000	April. 1900	2.00
236	Work, g.	Colo.	1,500,000	1,500,000	1	.....	.....	.....	.....
237	Yellow Aster, g.	Cal.	1,000,000	100,000	10	100,000	423,789	May. 1900	.20
238	Ymir, g.	B.Col	1,000,000	125,000	5	.....	30,000	Nov. 1899	.24
239	Zenobia, g.	Colo.	1,000,000	1,000,000	1	.....	10,000	Feb. 1893	.01

G., Gold. S., Silver. L., Lead. C., Copper. Z., Zinc. Q., Quicksilver. I., Iron. This table is corrected up to June 2d. Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

	Cust. Meas.	Price.
Abrasives—		
Carborundum, f.o.b. Niagara Falls, Powd., F. FF. FFF	lb.	$0.10
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester, Mass.	"	.04½@.05
Crushed Steel, f. o. b. Pittsburg	"	.05½
Emery, Turkish flour, in kegs	"	.03
Grains, in kegs	"	.04½@.05
Naxos flour, in kegs	"	.03
Grains, in kegs	"	.05
Chester flour, in kegs.	"	.03
Grains, in kegs	"	.04½@.05
Peekskill flour, in kegs	"	.03¼
Grains, in kegs.	"	.02½
Crude, ex-ship, N. Y.:		
Kuluk (Turkey)	lg. ton	22.00@24.00
Abbott (Turkey)	"	26.50@30.00
Naxos (Greek) h. gr.	"	32.00
Pumice Stone, Am. powd.	lb.	.01½@.02
Italian, powdered	"	.01½
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02½@.03
Lump, per quality	"	.05@.14
Rouge, per quality	"	.10@.30
Steel Emery, f.o.b. Pittsburg	"	.07
Acids—Acetic, 30% pure	100 lbs.	3.50
30% ch. pure	"	6.00
80% pure	"	7.50
Benzoic, English	oz.	.12½
German	lb.	.46
Boracic, cryst.	"	.11
Powdered	"	.11½
Carbolic, crude, 60%	gal.	.35
Cryst. 35%, drums	lb.	.20
Liquid, 95%	gal.	.45
Carbonic, liquid gas	lb.	.12½
Chromic, crude	"	.20
Chem. pure	"	.50
Hydrochloric, ch. pure.	"	.07
Hydrofluoric, 30%	"	.03
48%	"	.05
Best	"	.25
Nitric, chem. pure	"	.09
Sulphuric, chem. pure	"	.07
Sulphurous, liquid anhy.	"	.08
Tartaric, cryst.	"	.32
Powder	"	.32½
Alcohol—Grain	gal.	2.37
Refined wood, 95@97%	"	.75@.80
Purified	"	1.20
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Powdered	"	3.00
Chrome, com'l.	"	2.75@3.00
Aluminum—Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	100 lbs.	2.60
Sulphate, pure	"	1.50@1.75
Com'l	"	1.15@1.30
Ammonia—Aqua, 16°	lb.	.03
18°	"	.03¼
20°	"	.03¾
26°	"	.05½
Ammonium—		
Bromide, pure	"	.52@.55
Carbonate lump	"	.08¼@.08½
Powdered	"	.09¼@.09½
Muriate, gran.	"	.06¼
Lump	"	.09¼
Nitrate, white, pure (99%)	"	.10½
Phosphate, com'l	"	.12
Chem. pure	"	60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.12
Com'l gray	"	.07
Sulphuret, com'l	"	.16
Arsenic—White	"	.04¾
Red	"	.07¼@.07¾
Asphaltum—		
Ventura, Cal.	sh ton	32.00
Cuban	lb.	.01¼@.03¼
Egyptian, crude	"	.05¼@.06
Trinidad, refined	lg. ton	30.00@35.00
San Valentino	"	15.00
Seyssel (French) mastic	sh.ton	21.00
Gilsonite, Utah, ordinary	lb.	.03
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02@.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Am. Cr., No. 1	sh.ton	9.00
Crude, No. 2	"	8.00
Crude, No. 3	"	7.75
Am. Floated	"	14.50@17.50
German, gray	"	14.50
Snow white	"	17.50
Bauxite—Ga. mines: 1st grade	lg. ton.	5.00@5.10
Second grade	"	4.25@4.50
Ala., f.o.b., 1st grade	"	5.00
Second grade	"	3.85
Bismuth—Oxide, hydr.	lb	2.25@2.30
Subnitrate	"	1.30@1.35
Bitumen, "B"	"	.03½
"A"	"	.05
"A" and "B"	"	.04½
Bone Ash	"	.03¼@.03½
Borax	lb.	$ .07¼@.07½
Bromine—Bulk	"	.45
Cadmium Metallic	"	1.40
Acetate, pure white	100 lbs.	1.00
Sulphate	"	2.00@2.50
Calcium—Acetate, gray.	"	1.55
" brown	"	1.05
Carbide, ton lots, f. o. b. Niagara Falls, N.Y.	sh. ton	75.00
Carbonate, ppt.	lb.	.05
Chloride, com'l	100 lbs.	.90
Best	"	1.00
Sulphite	lb.	.05
Cement—		
Portland, Am.	400 lbs.	bbl. 1.50@2.00
Belgium	"	1.95@2.20
English	"	2.45@2.55
German	"	2.30@2.70
"Rosendale," 300 lbs.	"	.95
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow	lb.	.11½
White	"	.13½
Chalk—Lump, bulk	sh. ton	2.15
Ppt. per quality	lb.	.04¼@.06½
Chlorine—Liquid	"	.28
Water	"	.15
Chrome Ore—		
(50% chrome) ex ship	lg. ton	23.00
Sand	"	35.00
Bricks, f.o.b., Pittsburg.	M	175.00
Clay, China—Am. com., ex-dock, N. Y.	lg ton	8.00
Am. best, ex-dock, N. Y.	"	9.00
English, common	"	12 00
Best grade	"	17 00
Fire Clay, ord.	sh. ton	4.00
Best	"	5.75
Slip Clay	"	4.00
Coal Tar Pitch	gal.	.08
Cobalt—Carbonate	lb.	1.75
Nitrate	"	1.50
Oxide—Black	"	2.26@2.36
Gray	"	2.28@2.40
Smalt, blue ordinary	"	.25
Best	"	.30
Copperas	100 lbs.	72½
Copper—Carbonate	lb.	.18
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, com'l	"	.19
Cream of Tartar—Crys.	"	.22½
Granulated	"	.22½
Powdered	"	.23½
Cryolite	"	.06½
Explosives—		
Blasting powder, A. 25 lb. keg		2.50
Blasting powder, B.	"	1.25
"Rackarock," A	lb.	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite (30% nitro-glycerine)	"	.13
(30% nitro-glycerine)	"	.14
(40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.16½
(60% nitro-glycerine)	"	.18
(75% nitro-glycerine)	"	.21
Glycerine for nitro (32 2-10° Be.)	"	.13¼
Feldspar—Ground	sh. ton	8.00@9.00
Fluorspar—In bulk.		
Am. lump, 1st grade	"	12.40
2d grade	"	11.90
Gravel & crushed, 1st g	"	11.40
2d grade	"	10.90
Ground, 1st grade	"	15.90
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Refined lump	"	1.25
Graphite—		
Am. lump, f. o. b. Providence, R. I.	sh. ton	8.00
Am. pulv., f. o. b. Providence, R. I.	"	30.00
German, lump	lb.	.01½
Pulverized	"	.01¾@.02
Ceylon, common	"	.04
Pulverized	"	.05@.08
Italian, pulv	"	.01½
Gypsum—Ground	sh. ton	8.00@8.50
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground, American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Iron—Muriate	lb.	.05
Nitrate, com'l	"	.01½
True	"	.03½
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07
Com'l, broken	"	.06½
Brown	"	.05½
Nitrate, com'l	"	.06½
" gran	"	.8¼
Lime—Com., ab. 250 lbs	bbl.	.60
Finishing	"	.70
Magnesite—		
Crude, lump (95%) Greece	lg. ton	7.00@7.50
Calcined (Greece)	sh. ton	17.50
Bricks (Greece)	M.	170.00
Bricks, Am., f.o.b., Pittsburg	M.	175.00
Magnesium—		
Carbonate, light, fine pd	lb.	.03¾
Magnesium—Carb. Blocks	lb.	$0.06@.09
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Sulphate	"	.01@.01¼
Manganese—Crude-pow'd 73@75% binoxide	"	.01¼@.01½
Crude, pow'd 75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%, Foreign	unit	.29
Domestic	"	.30
Marble—Flour	sh. ton	5.50@6.00
Mercury—Bichloride	lb.	.74
Mica—N. Y. gr'nd. coarse	"	.04@.05
Fine	"	.05@.06
Sheets, N. C., 2x4 in	"	.30
3x3 in	"	.80
3x4 in	"	1.50
4x4 in	"	2.00
6x6 in	"	3.00
Scrap, f.o.b., Dillsboro, N. C.	sh. ton.	25.00
Mineral Wool—		
Slag, ordinary	sh. ton	20.00
Selected	"	25.00
Rock, ordinary	"	32.00
Selected	"	40.00
Monazite—92%	"	140.00
Nickel—Oxide, No. 1	lb.	1.00
No. 2	"	.60
Sulphate	"	.20@.21
Oils—Black, reduced 29 gr.:		
25@30 cold test	gal.	.09¾@.10¼
15, cold test	"	.10¾@.11¼
Zero	"	.11¾@.12¾
Summer	"	.09¼@.09¾
Cylinder, dark steam ref	"	.08¾@.10¼
Dark filtered	"	.11¾@.16¼
Light filtered	"	.14¾@.17¾
Extra cold test	"	.21¾@.26¾
Gasolene, 86°@90°	"	.16@.21
Naphtha, crude 68@72°	"	9.55
"Stove"	"	.12
Linseed, domestic raw	"	.65@.67
Boiled	"	.69
Calcutta, raw	"	.76
Graphite, lubricating, Am. dry	lb	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.09¼
Paints and Colors—		
Benzine, Sumatra	"	.35
Marbled	"	.27
Chrome green, common	"	.05
Extra	"	.12@.15
Best	"	.37
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack, com'l	lb.	.03
Refined	"	.08
Calcined	"	.12@.20
Fine spirit	"	20@.35
Litharge, Am. powd	"	.06½
English flake	"	.09½
Glassmakers, Foreign	"	.06½
Metallic, brown	sh. ton	19.00
Red	"	16.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾
French, washed	"	.01¼@.02½
Orange mineral, Am	"	.08¾@.08½
Foreign, as to make	"	.09½@.11¼
Paris green, pure, bulk	"	.12
Red lead, American	"	.06½
Foreign	"	.08¾
Shellac, "D. C."	"	.28
Native	"	.15
Turpentine, spirits	gal.	.46@.46½
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.10@.11
Quicksilver, bulk	"	.72
Chinese	"	.85
English, imported	"	.80
English, domestic	"	.74
White lead, Am., dry	"	.05¾
In oil	"	.06¼
English	"	.06½@.08¾
Whiting, common	100 lbs.	.40
Gilders	"	.54
Zinc white, Am., ex-dry	lb.	.04¾@.05¼
American, red seal	"	.07¼@.07¾
Green seal	"	.07¾@.08
Foreign, red seal, dry	"	.06¼@.06¼
Green seal, dry	"	.06¾@.06⅝
Foreign, in oil	"	.10½@.11¾
Potash—Caustic, ord	"	.04½@.05
Elect. (90%)	"	.06½
Potassium—		
Bicarbonate cryst	"	.07¾
Powdered or gran	"	.12
Bichromate, Am	"	.08½
Scotch	"	.09½
Carbonate, hydrated	"	.04¼
Calcined	"	.04
Chromate	"	.35
Cyanide (98@99%)	"	.28@.29
Iodide, bulk	"	2.30
Permanganate, pure cr.	"	.14
Prussiate, yellow	"	.18½@.19
Red	"	.37
Silicate	"	.06
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—		
Com. strained (280 lbs.)	bbl.	1.55
Best strained	"	3.00
Medium	"	1.75
Salt—		
N. Y. com. fine	sh. ton	$2.00
N. Y. agricultural	"	1.50
Saltpeter—Crude	100 lbs.	3.50
Refined	"	4.25
Silica—Best foreign	lg. ton	10.00@11.00
Ground quartz, ord	sh. ton	6.00@8.00
Best	"	12.00@13.00
Lump quartz	"	2.50@4.00
Glass sand	"	2.75
Silver—Chloride	oz.	.65
Nitrate	"	.40
Oxide	"	.85@1.10
Slate—Ground, black	sh. ton	7.50@8.75
Ground, red and olive.	"	20.00
Sodium—Acetate, com'l.	lb.	.04¾
Bicarbonate	"	.06½
Chlorate, com'l	"	.09¼@.09½
Hyposulphite, Am	100 lbs.	1.70@1.80
German	"	2.10@2.20
Nitrite, 96@98%	lb.	.08
Peroxide	"	.45
Phosphate	"	.02¾
Prussiate	"	.14¼
Silicate, conc	"	.05
com'l	"	.02¼
Sulphate, gran., puri'd.	"	.03
Sulphide	"	.01¾
Sulphite	"	.02¼
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Nitrate	"	.09
Sulphur—Roll	100 lbs.	1.75
Flour	"	1.85
Flowers, sublimed	"	2.05
Talc—N. C., 1st grade	sh. ton	13.75
N. Y., Fibrous	"	8.00@9.00
French, best	100 lbs.	1.35
Italian, best	"	1.75
Tin—Bichloride	lb.	.09¼@.10
Crystals	"	.20
Muriate, 36°	"	.09
52°	"	.15
Oxide, white, ch. pure	"	.41
Uranium—Oxide	"	2.25@3.00
Zinc—Metallic, ch. pure	"	07¼@.09¾
Carbonate	"	.15
Chloride	"	.05
Dust	"	.07¼
Sulphate	"	.02@.02¼

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	2.00
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Cadmium	kg.	1.90
Calcium	grm.	4.28@5.95
Cerium—Fused	grm.	1.02
Nitrate (N. Y.)	lb.	17.00
Chromium—Fused, Elect.	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.26
Cobalt—(98@99%)	kg.	6.31@7.85
Pure	"	30.94
Didymium—Nitrate (N.Y.)	oz.	3.00
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	3.00
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.75
Indium	grm	4.05
Iridium	"	1.43
Lanthanum—Powder	"	4.28
Electrol, in globules	"	9.04
Nitrate (N. Y.)	oz.	2.75
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Magnesium—In bars	kg.	6.19
In wire	"	9.99
Powdered	"	5.71@6.90
Molybdenum—Fused	grm.	.20
Powder, 95%	kg.	2.62
Niobium	grm.	3.81
Osmium	"	.95
Palladium—Wire	"	.95
Sponge	"	.71
Potassium—In balls	kg.	17.85
Rhodium	grm.	2.62
Rubidium—Pure	"	4.76
Ruthenium—Powder	"	2.38
Rutile—Crude	kg.	.43
Selenium—Com'l powder	"	33.32
Sublimed powder	"	42.84
Sticks	"	35.70
Silicium—Com'l	"	28.56
Pure crystals	"	59.50
Sodium (N. Y.)	lb.	.65
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p, sticks.	kg.	119.00
Powder	"	95.20
Thallium	"	26.18
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	5.00
Titanium	kg.	47.60
Uranium	"	190.40
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused, elect	kg.	238.00
Powder, 95@98%	"	1.67
Purest, powder	"	6.43
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	3.00
Zirconium—Com'l	kg.	119.00
Nitrate (N. Y.)	lb.	9.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to June 9. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Reviews.